Timor-Leste
Population and Housing Census 2022

Thematic Report
Population Projection

INSTITUTO NACIONAL DE ESTATÍSTICA TIMOR-LESTE, I.P.
UNFPA
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Timor-Leste
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Population Projections by age and sex:
National level (2022 – 2050) and
Municipality level (2022 – 2035)

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Preface

The population and Housing Census 2022, conducted by the Timor-Leste National Institute of Statistics (INETL) from 5 September to 5 October 2022, underscored our continuing commitment to decision-making grounded in robust data analysis. Utilizing modern technology in the form of tablets for data collection, the census laid the foundation for a comprehensive understanding of our nation's demographic landscape. Initial census basic tablets were released in the latter part of 2023, enriching our understanding of the demographic intricacies captured during the 2022 Population and Housing Census.

This publication, is one of several detailed thematic census reports, addressing crucial areas such as fertility and nuptiality, mortality, migration, population projection, household and housing conditions, labour force and economic activity, disability, youth, gender, and a comprehensive census atlas, that will provide nuanced insights into specific demographic dimensions.

This volume provides a detailed analysis of mortality in Timor-Leste. Encompassing critical areas such as infant mortality, under five mortality, life expectancy, age specific mortality rates and maternal mortality, we expect this report to serve as a cornerstone for informed policymaking.

At this juncture, I would like to acknowledge the collective dedication of the INETL staff and the multi-stakeholder Census Technical Committee, led by Mr. Elias dos Santos Ferreira, President of INETL, I.P., in the successful completion of this Census. Their tireless efforts steered the census process from its initiation to the release of this report. Gratitude is also extended to our development partners from the UN System, among them, the UNFPA, UNICEF, UNDP, UN Women, and WFP, whose invaluable contributions have significantly enriched the census endeavour. Similarly, the support that we received from the Australian Bureau of Statistics (ABS) throughout the census process is also duly recognized.

On behalf of the Ministry of Finance, I would like to invite to all individuals with a keen interest in demographics and statistical data to leverage the insights presented in this publication. It is our hope that this compilation shall serve as reliable resource for informed discourse and evidence-based decision-making in the realm of our country's national development.

Thank you.

MINISTRA DAS FINANCAS
RDTL

Santina JRF Viegas Cardoso
Minister of Finance, RDTL

Acknowledgements

The Timor-Leste National Institute of Statistics (INETL), formerly the General Directorate of Statistics, implemented the Population and Housing Census 2022 under the slogan 'Our census, our future be part of it'.

The census was largely financed by the Government of Timor-Leste through the Ministry of Finance. Additional financial and material support in form of tablets and power banks, was provided by UNFPA, UN Women, UNDP, UNICEF and WFP. I would like to express my sincere gratitude for the unwavering support towards the census.

I would like to acknowledge the invaluable technical support provided by UNFPA throughout the census process. The support provided during field staff training by UN Women is also acknowledged.

Let me also thank a team of independent international monitors from the Australian Bureau of Statistics, who worked with us throughout the enumeration period, their feedback from the field was valuable and timely.

I would like to further express my appreciation to all members of the Census Technical Committee for their advice and guidance in the census. The Census Publication Commission led a successful implementation of the census publicity campaign to ensure that the stakeholders, including the general public, were informed about the census.

Special thanks go to each and every enumerator and supervisor who worked tirelessly, visiting households across the country to collect the census information. They worked for long hours and also at odd hours in trying to collect the information.

Finally, I would like to commend the work of all staff from INETL headquarters and municipality offices, who continue to work for the success of the 2022 census project. I am grateful to the people of Timor-Leste for their cooperation, without which a successful census would not have been possible.

Elias dos Santos Ferreira, L.Ec, MM
President, Timor-Leste National Institute of Statistics

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Executive Summary

Population projections are a critical step for incorporating population concerns into comprehensive national planning strategies. This Population Projections Thematic Report, is one of the several thematic reports to be produced by the National Statistical Institute of Timor-Leste (INETL) based on the results of the 2022 Population census, seeks to provide policy makers, planners, decision makers and development partners with reliable data on population dynamics in the three decades 2022-2050. More specifically, the thematic report seeks to project the size and age-sex structure of Timor-Leste's population as well as the number and future trends of households.

The report discusses the different types and methods (including those actually used) for projections as well as their limitations; levels and trends in the components of population change (fertility, mortality and migration); and source data and assumptions for the projections. The report then presents in detail the main results of the projections and discusses their policy implications.

The benchmark data for the projections is the 2022 Timor-Leste Population Census.

The high variant projections show that the total population of Timor-Leste will reach 2,159,658 by 2050, an increase of 0.8 million people. The medium (the recommended) and low variant projections show that the country's population will increase by 626,676 and 518,830, respectively in 2050.

Based on the levels and trends of the components of population change, the projections assume that Timor-Leste's total fertility rate will decrease from 3.6 children per woman in 2022 to 2.1 in 2050, partly a result of national policy which includes promotion of responsible parenthood awareness, availability of community health services, increase in contraceptive prevalence rate and girl-child school attendance; life expectancy at birth will increase from 65.1 to 72.1 for males and from 69.3 to 77.2 for females due to a number of coordinated socio-economic and health care interventions, involving scaling up of early infant diagnosis and access to health system; net international migration will be zero due to paucity of data; the sex ratio at birth of 99 males per 100 females estimated at the 2022 population census will hold throughout the projection period.

The age-sex structure of Timor-Leste's population is projected to significantly change over the projection period, with the proportion of the working age population (15-64) projected to rise from 58.8 percent in 2022 to 66.6 percent in 2050 while that of persons below 15 years is projected to decline from 35.9 percent in 2022 to 22.9 percent in 2040. The proportion of older persons (65 years and above) is expected to increase from 7.4 to 9.5 percent.

A growing population with an increasing number of households will inevitably exert pressure on land, housing, schooling and health services, food security, greenhouse emissions and energy needs. Government is expected to enact skills development and labour force retention strategies.

Policy makers will need to address the socio-economic needs of the young and elderly, as well as the health sector imperatives, to meet the primary targets of the SDGs development agenda. These projection results show that Timor-Leste is in a demographic transition and that it stands at the threshold of entering the demographic dividend that can be harnessed in the coming 20 years.

Key determinants of population change will continue to be mortality and fertility levels, whilst international migration will play an insignificant role. The successful health policy interventions, programmes and investments in maternal and child health and family planning and the successful education policies and programmes, which have seen the country improving on literacy rate in is key to contributing to the opportunity of the demographic dividend arising today. The government of Timor-Leste stands to reap from the Demographic Dividend there are appropriate interventions in the youth.

Failure to manage the demographic transition will guarantee lags in economic growth as well as increase the risk of social and political turbulence. To avoid such a scenario from happening, it will be critical for the Government of Timor-Leste to ensure that issues related to achieving the demographic dividend remains central to the Sustainable Development Goals (SDGs).

1. **Overview of Timor-Leste Population and Housing Census**

1.1 Background and Context

The analysis on mortality in this report uses data from the 2022 Population and Housing census that was conducted by the then General Directorate of Statistics (GDS), later known as National Statistical Institute of Timor-Leste (INETL). The census was conducted from September to October 2022. Timor-Leste regained its independence in 2002 from Indonesian rule after 27 years. Previously the country was a Portuguese colony until 1975 when it got its independence. The 2022 census was the fourth to be conducted in Timor-Leste since the restoration of independence. Previous censuses were conducted in 2004, 2010 and 2015, that is approximately every five years.

1.2 Objectives of the Census

The objectives of the Timor-Leste Population and Housing Census 2022 were the following:

- Produce reliable statistical information on the size, composition, characteristics and spatial distribution of the resident population of Timor-Leste, as well as on the size, characteristics and spatial distribution of the country's housing stock, and more specifically on
  - levels of fertility, mortality and migration
  - the educational attainment level of the population
  - the size and characteristics of the labour force
  - the participation of the population in agricultural production
  - the prevalence of disability by type
  - the rate and patterns of urbanization
  - housing conditions and availability of amenities and assets.
- Produce a sampling frame for household- and housing surveys in the ten years following the 2022 census.
- Produce the baseline for population projections.

- Providing the base for Timor-Leste's Geographical Information System.

1.3 Census methodology

1.3.1 Census planning

Preparations for the census started in 2018 with development of a census project document which contained the complete census plan and the estimated cost of the whole census project. The document was crucial for resource mobilization from both the Government and development partners. Work on questionnaire development also started early with stakeholder consultation on topics and questions to be included in the census. This work built on topics that are recommended internationally to be included in the census.

1.3.2 Census mapping

Update of census maps was one of the key activities in the pre-enumeration period, starting from 2018. The mapping programme for the 2022 census adopted a digital approach, based on an integrated system composed of Geographic Information System (GIS) tools, Global Navigation Satellite Systems, high-resolution Earth Observation satellite images and tablets. The mapping field work was aimed at updating the census frame with new buildings that did not exist in 2015 census. The process was aimed at producing accurate maps to be used in the census enumeration process. The EA maps were delineated based on the number of households, a criterion that was set to determine a reasonable workload for enumerators during the enumeration process. Each building was geo-tagged, building on the existing geo-coded census frame. The mapping data was verified, and office EA delineation was completed in 2022, resulting in 2,384 EAs.

1.3.3 Census Publicity

The success of the census depends on the quality of the information provided by the public. INETL updated the 2022 census publicity plan in February 2022 after the government approved the establishment of the census administrative structure. The campaign strategy identified four main target groups: government ministries and departments, traditional leaders, the media and the general public. A series of key messages were developed, including information about the census date, duration and importance. There were several

census materials developed to promote census awareness. These included radio and TV adverts, a census jingle, stickers, leaflets, posters, banners, T-shirts, bags, umbrellas, hand fans, pens and notepads.

The INETL communication and public relations unit designed a census logo as well as developing a slogan and a census mascot. The slogan for the census was ‘Our census, our future be part of it’.

1.3.4 Field staff training

Due to their large numbers, the training of census field staff was implemented with a cascade approach, involving three levels of training:

From August 2022, census training started with 26 master trainers in Dili who later trained 180 field staff trainers in six parallel classes, also in Dili. Finally, decentralized trainings of 2,345 enumerators, 623 census supervisors and other local census staff ware conducted across all 14 municipalities. Each of the trainings took at least 7 days. Apart from the master trainers who were all permanent civil servants, the majority of the other field staff were recruited for as temporary staff for the census enumeration phase. The training was standardized using a power point version of the instruction manuals for enumerators and supervisors that were developed as guidelines for the census fieldwork.

1.3.5 Census enumeration

The 2022 census data was collected through a traditional approach where households were visited by enumerators across the whole country to collect information on all individuals by asking pre-defined questions to the respondents. Enumeration was conducted in regular households as well as collective living quarter. The information collected was on a de jure population meaning that the people enumerated were usual household members as of the night of 4 September 2023 (census night). The census enumeration period was from 5 September to 5 October 2023, and was followed by a sweeping exercise to enumerate households that were missed out during the official enumeration period.

The information from the regular household population was collected through a long questionnaire that had all the census questions while a short questionnaire with only a few selected questions was used for the collective living quarters.

1.3.6 Post-Enumeration Survey

In accordance with international recommendation, a Post-Enumeration Survey was conducted to evaluate the quality of the census, mainly under-coverage or over-coverage of the population in 2022.

The Timor-Leste 2022 PES tools that included the questionnaire and the tablet computer application were developed as part of the census pilot phase. A full pilot PES was conducted in April 2002 immediately following the pilot census to test these tools but also the training and enumeration procedures and initial matching procedures.

The PES sample a nationally representative sample stratified by municipality and urban-rural location. There were 16 thousand households in 149 EAs selected for a complete re-enumeration. The actual sample was drawn with probability-proportionate-to-size in late September 2022, strategically scheduled not to affect or influence completion of the main census enumeration. Other measures to preserve the independence between the census and the PES included the condition that PES field staff did not work in EAs where they were engaged in the census.

The training of the PES enumerators by INETL staff and a member of the technical assistance team was conducted from 4 to 5 November 2022. The three-week PES data collection period started on 7 November, which implies a relatively small period between the census and PES enumeration.

Though the PES data collection was conducted timely towards the end of 2023, the commencement of matching and analysis of the PES was postponed from mid-2023 to mid-2024.

1.3.7 Data processing and analysis

Computer-assisted personal interviewing (CAPI) using tablets was used in the census, which was for the first time to use such electronic data collection in a census. The CAPI application, developed in CSPro integrated digital maps of EAs that were used as a base for geo-referencing both the households and the housing units and to organise the work of the enumerators. Daily data synchronisation to the server managed at Census head office, enabled effective monitoring of the enumeration process including generating reports for the census management team.

This technological innovation enabled the data to be captured electronically during the enumeration phase but also to be transferred to the census head office therefore making it possible to monitor the data collection progress in real time. A census dashboard developed before enumeration, was used to produce daily reports and visualization of the progress by municipality and Administrative- Post level

Data editing to correct inconsistencies in the data started took place from November 2022 to April 2023. A significant improvement in the quality of the data collected was observed due to the use of CAPI data collection. There was a set of editing rules developed, which showed that that less than 5 percent of the records violated at least one skipping rule, that no implausible values were recorded for gender and that just few cases had missing or implausible values in the age.

The 2022 census collected some information that required coding after the enumeration – information such as field of study, occupation and industry. For the information on industry, the International Standard Industrial Classification of All Economic Activities (ISIC, rev 4) (United Nations, 2008) was used for response coding. The information on occupation was coded based on the International Standard Classification of Occupations (ISCO-08) (International Labour Office, 2012). The information on field of study was be coded on the basis of the International Standard Classification of Education, Fields of education and training (ISCED-F 2013) (UNESCO, 2015).

The census coding process started in December 2022 with manual coding by a team of ten coders and three supervisors from the pool of census secretariat staff. For the manual coding there was an existing code list in Tetum that was developed for the 2019 Timor-Leste Labour Force Survey. The manual coding process was time consuming, therefore later from February 2023, automated coding was attempted to match census information on occupation and industry using the partially coded census data. More efforts were made to finalise the coding later in 2023.

1.3.8 Census dissemination

Preliminary census results were released in November 2022 which was within six weeks of completion of census enumeration. There was a national dissemination seminar held in Dili with several Government officials and Development partners, where the report was shared.

The census main report was released in May 2023, at a national dissemination workshop, also held in Dili. In a similar manner like the preliminary report release, the participants were from both the Government and Development agencies.

In October 2023, selected indicators were compiled into a wall chart and disseminated. The indicators were presented at national, urban -rural, municipality and administrative post level. All the census reports and the wall chart were also published on the INETL for easy access by the public.

1.4 Organization of the thematic report

Following this chapter, the next section discusses the methodologies. It provides the main approach, the use of cohort component methods, formulation of assumptions on fertility, mortality and migration. The section also provides the overview of the application that was used for conducting the projections. Next, the results at national level are presented followed by the subnational level projections. The report finally provides the policy conclusions and policy recommendations.

2. Methodological aspects

2.1 Overview of cohort component method

Population projections are calculations which show the future development of population when certain assumptions are made regarding changes in population growth or its components: the future course of fertility, mortality, and migration (Buettner, 2022). They help in anticipating changes in the population's age distribution, size, and other demographic characteristics. Population projections typically involve using mathematical models that consider factors such as birth rates, death rates, migration patterns, and other demographic indicators. These models can be based on historical demographic data and assumptions about future trends in fertility, mortality, and migration.

Population projections are usually conducted by age and sex and the cohort component is the most frequently used method (Rowland, 2003). It involves an independent projection of mortality, fertility, and net migration. The procedure starts by establishing an initial or base population by sex and age groups (usually in five-year age groups). It is frequently a census population that has been adjusted for under-enumeration and errors in age and sex composition. Each age-sex group of this population is aged through time by applying to them mortality and net migration rates, and by adding up new members using fertility rates (Yusuf and Swanson, 2014).

Population projection is probably the demographic technique that is most frequently requested by demography's "clients." Governments seek projections of future demographic parameters in order to anticipate demands of all kinds including socio-economic allows integration of population variables in development planning. Private businesses seek population projections in order to estimate the potential size of their future "market."

Besides satisfying the needs of clients, demographers also use population projections more abstractly to analyze the implications of a certain set of demographic parameters for population size, composition, and growth. Projections illustrate the implications of certain demographic characteristics (the model's user-selected inputs) on population parameters over

time (the model's outputs). Although most population projections concentrate on the consequences of a set of fertility, mortality, and migration assumptions, projections can also be designed to demonstrate the consequences of marriage patterns, contraceptive use regimes, and many other demographic processes.

While sophisticated models could be used to forecast the fertility and mortality rates in future the migration levels, both internal and international, are much more difficult to forecast. It may also be noted that projections are periodically revised as new data become available through censuses and/or other sources.

In this sense, a population projection is more a prospective exercise than a prediction. Thus, a population projection is a conditional calculation showing what a future population would be like if a particular set of assumptions were to hold true.

The present report employed the cohort component method to project the population. The principle of the cohort component projection method is that the components of population change (fertility, mortality, and net migration) are projected separately for each birth cohort (persons born each year) (Preston, 2001). The base population is advanced each year by using information on the projected survival rates and net international migration.

2.2 Application of Demographic Analysis and Population Projection System (DAPPS)

A software developed by the United States Bureau of the Census was used to conduct this projection[1]. The program provides outputs on a variety of demographic measures for any specified year of the projection such as population by age and sex (single years, 5-years age groups, and special age groups), summary measures, summary vital rates, life tables, migration rates, number of birth and death, etc.

[1] See: https://www.census.gov/data/software/dapps.html . The program can be downloaded in the same site.

One of its major advantages is to perform projections by single years of age (and not five-years as the conventional approach). This feature allows obtaining data for special age groups that do not fall into conventional five-year age groups. It also enables tracking of population cohorts that may be smaller or larger than surrounding cohorts due to past demographic events. This feature makes it possible to add information on demographic events for a particular year without having to interpolate between data for surrounding years.

The calculations of fertility and mortality from these sources were conducted using mainly two software: PAS, developed by the US Census Bureau[2] and MORTPAK developed by the United Nations Population Division[3]. They are collections of programs for population analysis, manly for indirect estimates of mortality and fertility (Arriaga, 1994).

2.3 Preparation and adjustment of the Base Population

The cohort-component method is based on the fundamental demographic equation. The resulting population is carried into future, by age and sex, age-specific birth rates, sex ratio at birth, sex and age-specific survival ratios (based on life tables) and sex and age-specific migration rates. The base population for these projections was the people counted by the 2022 Timor-Leste Population Housing Census. This population was adjusted according to several considerations explained elsewhere. This adjusted population was projected up to year 2050 at the national level and at the provincial level, up to year 2035.

Secondly, there is a need to formulate assumptions regarding the future trends of the benchmark component data. A variety of computer software packages currently exist for the generation of these projections in single or five-year age intervals as well as at single or five-year period spans.

[2] The PAS set of Excell programs can be obtained in the following webpage: https://www.census.gov/data/software/pas.html
[3] For the demographic software MORTPAK see: https://mortpak.software.informer.com/

The census population is affected by age and sex is under-enumeration and errors in age reporting known as coverage errors, which are defined as errors caused by the miscounting of the population on Census Day. There are two types of coverage error. Population under numeration refers to the error of excluding someone who should have been enumerated. Population over numeration refers to the error of either enumerating someone more than once or including someone who should not have been enumerated. The latter error is considered negligible (Yaukey et al, 2007). Under enumeration is more common than over enumeration. Under-enumeration is especially challenging when it affects more some age groups or sex than others. As much as possible, the census population to be used as a base population in a projection exercise should be free of under-enumeration and age declaration problems.

2.4 Evaluation of the census data

There are several instruments that are used to evaluate the age-sex distribution of a population. One of them is the United Nations Age-Sex Accuracy Index. It was applied to the 2022 census to evaluate the accuracy and reliability of the age-sex distribution. The program AGESEX was used. This program is included PAS, the set of Excel programs previously mentioned and cited.

The first panel in Table 1 shows the 2022 population by age groups. The result, 32.1, suggests that the age-sex distribution has some problems of reliability[4]. With the adjusted population the index declines substantially; therefore, this population was used as a base population for these projections. In order to reduce this problem, the 2022 census was adjusted using the program Best Population Adjustment (BPA) was used to adjust for the undercount of 0-9 population. This is an important step to remove any noise that may be introduced in the projections. Prior, there were severe kinks in the projected population pyramids. Applying the BPA adjustment enabled to remove the severe kinks. Although a slight kink persisted in the final projection, due to historical events of Timor-Leste, nevertheless, it was far less than the initial projection.

[4] A result between 20 and 40 is considered inaccurate and over 40 as highly inaccurate.

In addition to smoothing the population, it was necessary to move the population from the census date (5 September 2022) to 1 July 2022, which is the middle of the year. By convention, projections are prepared by the mid-year of the years covered by the projection period. This was done using the PAS worksheet MOVEPOP from the software PASEX. The population as of 1 July 2022 is presented in the third panel of Table 1 and in Figures 1 and 2.

Table 1: Timor-Leste census populations by age and sex, enumerated, smoothed, and moved to mid-2022.

	Census Population			Smoothed Population			Base population (1 July 2022)		
Age groups	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
Total	**1,341,737**	**681,254**	**660,483**	**1,341,672**	**681,189**	**660,483**	**1,357,289**	**689,582**	**667,707**
<1	28,718	14,842	13,876	35,833	18,312	17,521	36,487	18,646	17,841
1-4	131,165	67,026	64,139	123,620	63,318	60,302	126,163	64,621	61,542
5-9	159,592	81,779	77,813	159,957	81,952	78,005	163,292	83,661	79,631
10-14	147,559	75,596	71,963	158,380	81,115	77,265	161,623	82,776	78,847
15-19	157,543	80,323	77,220	146,722	74,804	71,918	149,050	75,991	73,059
20-24	132,703	67,177	65,526	129,362	65,182	64,180	129,877	65,442	64,435
25-29	109,639	54,744	54,895	112,980	56,739	56,241	113,054	56,776	56,278
30-34	93,764	46,788	46,976	96,096	48,221	47,875	96,082	48,214	47,868
35-39	81,667	41,470	40,197	79,335	40,037	39,298	79,774	40,259	39,515
40-44	53,036	26,872	26,164	58,775	30,206	28,569	60,186	30,931	29,255
45-49	55,280	29,114	26,166	49,541	25,780	23,761	51,368	26,731	24,637
50-54	50,149	26,664	23,485	47,128	24,892	22,236	49,598	26,197	23,401
55-59	36,319	18,905	17,414	39,340	20,677	18,663	41,200	21,655	19,545
60-64	29,497	14,858	14,639	27,598	14,134	13,464	28,162	14,423	13,739
65-69	21,170	10,632	10,538	23,069	11,356	11,713	22,627	11,138	11,489
70-74	24,287	11,037	13,250	20,751	9,698	11,053	19,325	9,032	10,293
75-79	17,108	7,823	9,285	20,644	9,162	11,482	18,255	8,101	10,154
80 +	12,541	5,604	6,937	12,541	5,604	6,937	11,166	4,990	6,176

Figure 1: Timor-Leste, 2022 Census population by age groups and sex, Timor-Leste 2022

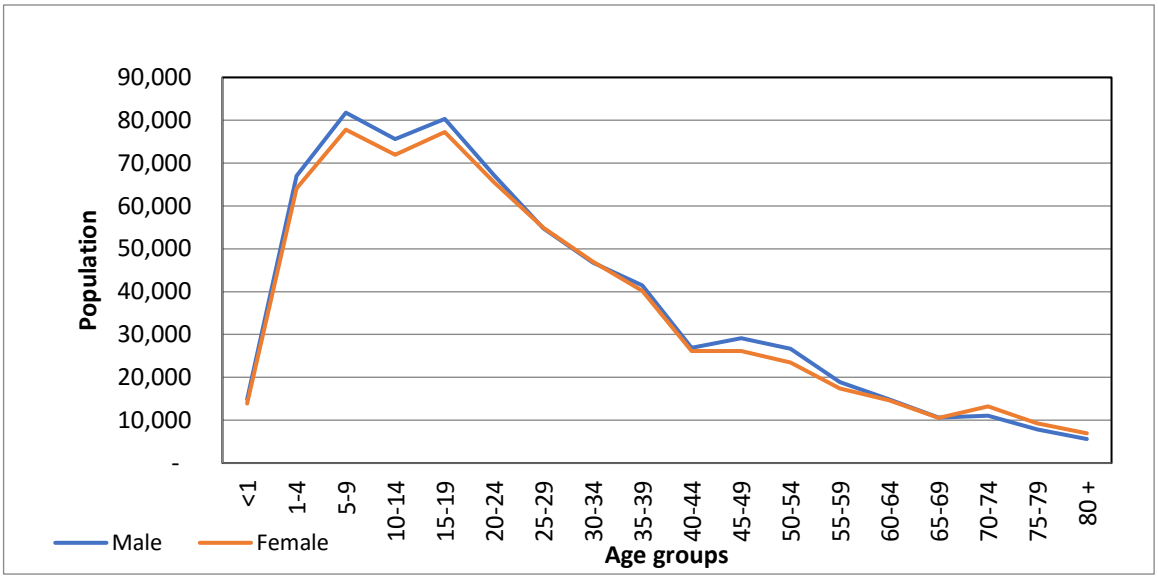
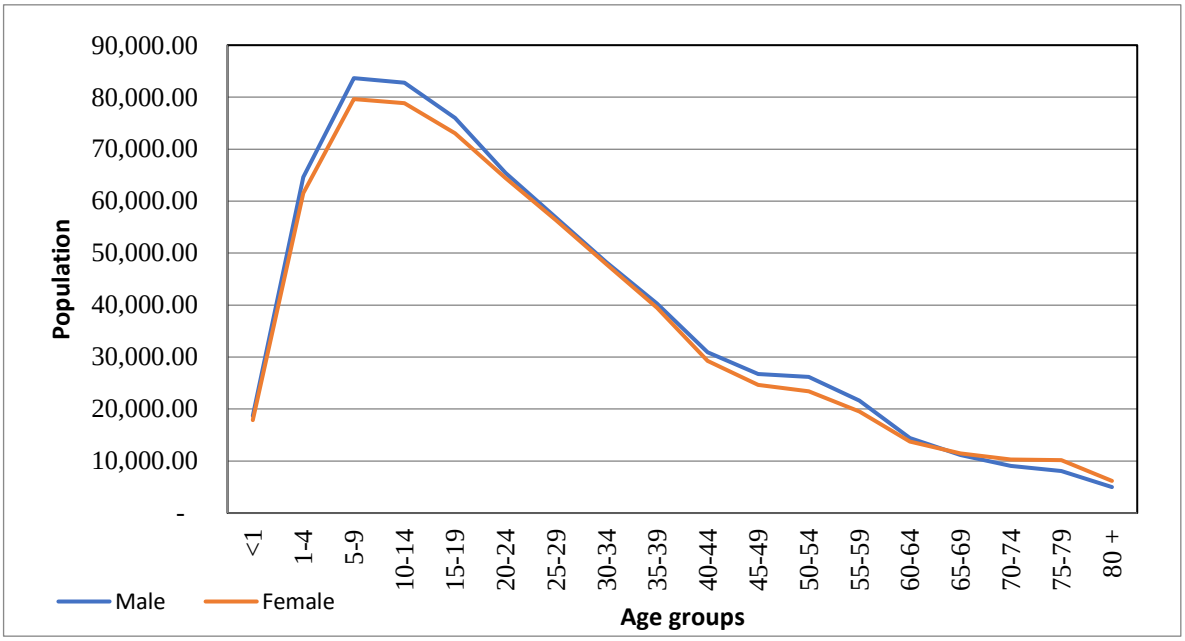


Figure 2: Timor-Leste, 2022 Census population by age groups and sex, smoothed and moved to 1 July 2022



2.4 Estimation of Population Projection Components

The usual practice in most population projections is to extrapolate the components according to past trends. The most common strategy is to project into the future past trends of mortality, fertility and migration according to known functions such a straight line, an exponential or logistic. In the case of the present projection, data sources from the Multiple Indicator Cluster Survey (MICS) (2002), censuses (2004, 2010, and 2015) and from Demographic and Health Surveys (2003, 2009-10 and 2016)) were used to examine past component trends.

2.4.1 Mortality

One of the key mortality input variables for population projections is life expectancy at birth (e0). Life expectancy estimates the average number of additional years that a person of a given age can expect to live. It has to be noted that life expectancy is a hypothetical measure. It is an indirect measure of modernisation, education and affluent lifestyles which is used as a proxy measure of mortality, to gauge the general health status of the population.

The most adequate indicator of mortality to be used in a projection exercise is the survival rate by age and sex, which is a function of a life table[5]. Hence, for the purpose of population projections it is necessary to start by constructing a male and female life table for the beginning of the projection period.

Life expectancy at birth

When projecting the component of mortality, a major issue was to establish initial life tables, which are life tables that set up the initial level and age composition of mortality for males and females. The National Statistical Institute of Timor-Leste (INETL) developed some thematic reports, including the Mortality Thematic analytical report, which describes the level and pattern of the mortality situation in Timor-Leste. The initial life tables were constructed with two basic data from the 2022 Census: (a) children ever born and surviving (by sex) by age of women, with which infant and child mortality by sex was estimated, and (b) the population who have died during the 12 months previous to the census (by sex), with which adult mortality by sex was estimated. These two indicators are combined to form a male and female life table[6]. The lifetables constructed for males and females from the 2022

[5] The life table is a tool used to simulate the lifetime mortality experience of a population. It does so by taking that population's age-specific death rates and applying them to a *hypothetical* population of 100,000 people born at the same year.

Timor-Leste Mortality thematic report were used; a full description of the construction of these life tables is provided in the mortality report. These two life tables, which correspond to the year 2022, are presented in Table 2 and 3.

Table 2: Life table, males, Timor-Leste, 2022 census.

Age group	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)
<1	0.0487	0.0469	100000	4686	96145	0.9271	6507513	65.1
1-4	0.0152	0.0585	95314	5572	367393	0.9621	6411368	67.3
5-9	0.0024	0.0121	89742	1088	445992	0.9904	6043975	67.3
10-14	0.0014	0.0071	88655	628	441704	0.9917	5597983	63.1
15-19	0.0020	0.0101	88027	888	438029	0.9883	5156279	58.6
20-24	0.0027	0.0132	87139	1153	432901	0.9859	4718250	54.1
25-29	0.0030	0.0148	85986	1274	426802	0.9842	4285349	49.8
30-34	0.0034	0.0168	84712	1423	420075	0.9819	3858547	45.5
35-39	0.0039	0.0195	83289	1625	412477	0.9789	3438472	41.3
40-44	0.0046	0.0229	81664	1870	403786	0.9744	3025996	37.1
45-49	0.0059	0.0290	79795	2314	393437	0.9659	2622210	32.9
50-54	0.0082	0.0402	77481	3118	380024	0.9511	2228773	28.8
55-59	0.0121	0.0587	74363	4365	361449	0.9304	1848748	24.9
60-64	0.0169	0.0812	69998	5684	336276	0.9079	1487300	21.2
65-69	0.0218	0.1033	64314	6641	305302	0.8865	1151023	17.9
70-74	0.0267	0.1255	57673	7236	270640	0.8563	845722	14.7
75-79	0.0362	0.1663	50437	8389	231760	0.8088	575082	11.4
80-84	0.0526	0.2345	42047	9858	187455	0.4540	343321	8.2
85+	0.2065	...	32189	32189	155866	...	155866	4.8

Table 3: Table 9: Life table for females, 2022[7]

Age group	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)
<1	0.0392	0.0380	100000	3800	96823	0.9491	6927489	69.3
1-4	0.0074	0.0289	96200	2780	377744	0.9751	6830666	71.0
5-9	0.0038	0.0187	93420	1743	462742	0.9862	6452922	69.1
10-14	0.0018	0.0088	91677	810	456360	0.9900	5990180	65.3
15-19	0.0024	0.0117	90867	1066	451776	0.9868	5533820	60.9
20-24	0.0029	0.0144	89801	1297	445830	0.9850	5082045	56.6
25-29	0.0031	0.0153	88505	1357	439162	0.9841	4636214	52.4
30-34	0.0034	0.0166	87148	1449	432165	0.9825	4197052	48.2
35-39	0.0038	0.0186	85699	1592	424581	0.9803	3764887	43.9
40-44	0.0043	0.0210	84107	1770	416214	0.9768	3340307	39.7
45-49	0.0052	0.0258	82336	2123	406573	0.9702	2924093	35.5
50-54	0.0070	0.0346	80213	2776	394461	0.9586	2517520	31.4
55-59	0.0100	0.0487	77438	3773	378128	0.9451	2123059	27.4
60-64	0.0125	0.0607	73664	4469	357376	0.9349	1744930	23.7
65-69	0.0144	0.0697	69195	4822	334102	0.9243	1387555	20.1
70-74	0.0173	0.0829	64373	5338	308819	0.9084	1053453	16.4
75-79	0.0224	0.1065	59035	6286	280537	0.8468	744634.4	12.6
80-84	0.0492	0.2214	52749	11681	237559	0.4881	464097.1	8.8
85+	0.1813	...	41069	41069	226538	...	226538.3	5.5

The next steps involved the projection of project mortality levels and patterns. PASEX E0PRJ1 was used to project life expectancies for males and females by fitting a logistic function based on 2022 life expectancies: 65.1 years (males) and 69.3 years (females). The projection was done using a logistic function with a lower asymptote of 30 years for both males and females. The present projection assumed the same mortality projection for the three scenarios. This is in keeping with the 2015 Analytical report on projection (GDS, 2015).

Table 4: Projected life expectancy at birth for Timor-Leste

Life Expectancy at Birth 2020 - 2050		
Year	**Male**	**Female**
2022	65.10	69.30
2025	65.90	70.15
2030	66.13	71.86
2035	67.60	73.46
2040	68.99	74.95
2045	75.28	78.33
2050	80.00	83.00

[7] m(x,n) Age specific death rates; ${}_nq_x$ Proportion of persons alive at the beginning of the age interval who die during the age interval; l_x Of the starting number of new-borns in the life table (called the radix of the life table, usually set at 100,000); ${}_nd_x$ The number of persons in the cohort who die in the age interval $(x, x+ n)$; ${}_nL_x$ Number of years of life lived by the cohort within the indicated age interval $(x, x+ n)$ (or person-years of life in the age interval); T_x Total person-years of life contributed by the cohort after attaining age x; e_x^0 Average number of years of life remaining for a person alive at the beginning of age interval x.

The projected life expectancy at birth assumes that mortality will continue declining and ultimately will approach to a pattern characteristic of a situation of the lowest levels as determined by the World Population Prospects (2022). Because of this, there was a need to include the Ultimate (Mx) 2100 values which were used to extrapolate ASMR corresponding to the life expectancies at birth projected for 2050.

The program DAPPS requires a limit life table for the far future, say 2100, for the calculations. It was assumed that life expectancy at birth for the terminal year of the projection period (2050) will be 80.0 years for males and 83.0 years for females. It was considered that these values provide a realistic level of mortality for the future considering the present level and the experience of other countries in the region. Thus, it is estimated that the life expectancy at birth declined from an historical trend approaching to the terminal values but taking the shape of the ultimate as presented in the Table 5.

Table 5: Projected Age Specific Mortality Rates for Males and Females for 2050

Age group	Male	Female
<1	0.00198	0.00140
1-4	0.00006	0.00007
5-9	0.00004	0.00002
10-14	0.00003	0.00002
15-19	0.00006	0.00003
20-24	0.00008	0.00004
25-29	0.00008	0.00005
30-34	0.00009	0.00006
35-39	0.00012	0.00008
40-44	0.00019	0.00012
45-49	0.00035	0.00018
50-54	0.00063	0.00028
55-59	0.00116	0.00045
60-64	0.00196	0.00072
65-69	0.00382	0.00153
70-74	0.00745	0.00328
75-79	0.01420	0.00701
80 +	0.02835	0.01555

2.4.2 Projection of fertility

As in the case of mortality, fertility was also projected based on past levels and patterns. Using the TFR estimated from various data sources previously mentioned to identify a trend. Following a usual practice, three projections were prepared based on hypotheses regarding future changes on fertility[8]. They are labelled here as High, Medium and Low. The original projection is considered as the Recommended scenario because it is the most likely to occur in the future. The High and Low hypotheses represent maximum or minimum values that fertility rates may take in the future. They may have a very low probability to occur but are calculated for their analytical value and to set an upper and lower limit within which population growth is virtually certain to remain.

The high fertility scenario assumes that fertility rates will be higher than expected, while the low assumes that fertility rates will be lower than expected. This scenario explores the potential consequences of sustained low birth rates, which could have implications for population aging and workforce dynamics. they may have a very low probability to occur but are calculated for their analytical value and to set an upper and lower limit within which population growth is expected to remain. It is important to note that these scenarios are not predictions but rather tools for exploring the sensitivity of population projections to different assumptions and events. They assist in making more informed decisions and developing robust policies that can adapt to various demographic trajectories (Bijak et al., 2015).

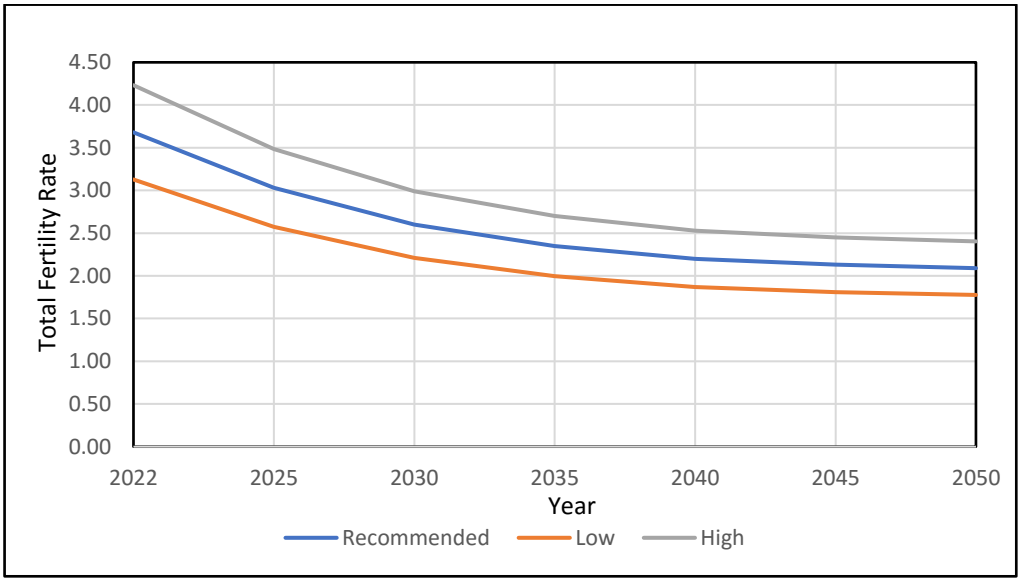
Table 6 and Figure 3 show the projected Total Fertility Rate according to the three fertility hypotheses, The Total Fertility Rate assumed in the High Scenario is 15 percent higher than that proposed in the Recommended Scenario and that assumed in the Low Scenario is 15 percent lower than that proposed in the Recommended Scenario. The Total Fertility Rate assumed in the Constant Fertility Scenario is the same during the entire projection period and correspond to the initial Total Fertility Rate in the Recommended Scenario.

[8] In some projections the hypotheses include future changes in the other components, that is, in mortality and migration. However, for this projection it was decided to formulate the hypotheses based on fertility only so as to center the analysis in a specific component, which is considered as the most important for the study of population change in Timor-Leste.

Table 6: Projected Total Fertility Rate (TFR) according to three fertility scenarios, 2022 to 2050

Year	Projected TFR		
	Recommended	Low (15% lower)	High (15% higher)
2022	3.68	3.13	4.23
2025	3.03	2.58	3.48
2030	2.60	2.21	2.99
2035	2.35	2.00	2.70
2040	2.20	1.87	2.53
2045	2.13	1.81	2.45
2050	2.09	1.78	2.40

Figure 3: Projected Total Fertility Rate according to three fertility scenarios, 2022 to 2050.



Projection of age specific fertility rates (ASFRs)

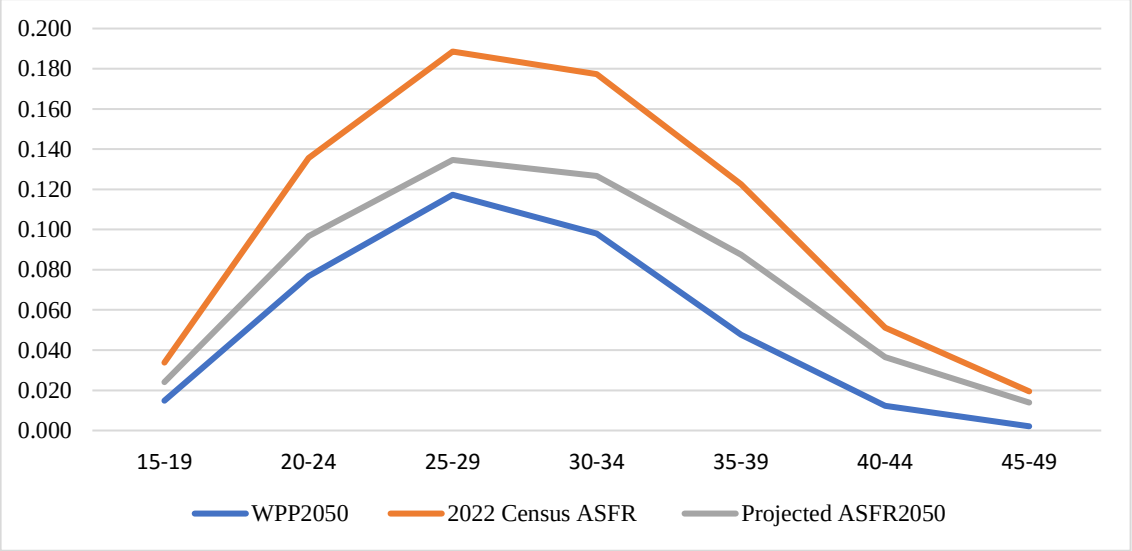
Regarding the projection of the ASFR, it was considered that the age composition of fertility remained constant during the entire projection period. This means that the relative ASFR remained constant. Table 7 shows the ASFR for years 2022 and 2050. Although the rates are different, the relative distribution is the same (first column).

Table 7: Estimated and projected age-specific fertility rates (ASFR), WPP2021, Census 2022 and Projected 2050

Age of a woman	2022 Census ASFR	WPP 2050	Projected ASFR 2050
15-19	0.0338	0.0148	0.0241
20-24	0.1355	0.0769	0.0967
25-29	0.1885	0.1173	0.1346
30-34	0.1774	0.0980	0.1266
35-39	0.1225	0.0477	0.0874
40-44	0.0512	0.0124	0.0366
45-49	0.0195	0.0021	0.0139
Sum	0.7284	0.3692	0.5199
TFR	**2.4**	**1.8**	**2.6**

As the ASFR schedule was assumed to take the fertility schedule for the most Southeast Asian fertility pattern, the WPP 2022 was used to model the ASFR schedule – the ultimate shape of ASFR for change in the terminal year. The information is presented in Figure 4 shows the corresponding observed 2022 ASFR, projected ASFR in 2050 and the WPP 20250. The 2050 shape indicate a later pattern of childbearing in the age ranges 30-34. Women in this age group will have much fewer number of children compared to the 2022 census.

Figure 4: Estimated and projected age-specific fertility rates (ASFR) patterns, WPP2022, Census 2022 and Projected 2050



2.4.3 Migration

While the 2022 census collected data on international migration, as it is usually the case, the reference period for measuring lifetime net (in) migration and for the last year which could have allowed estimating net migration, was different. Because of this difference in reference period, it is not possible to estimate net migration. An indirect method using a PAS workbook for estimating net migration LTCSRMig was therefore use used to assess the net annual migration. The estimate resulted in net migration -1,800.

Nevertheless, in most countries international migration is not significant. Therefore, in many cases, it is reasonable to assume that it is unlikely that, in the future, international migration will become a major component of population change in the country.

Additionally, according to the 2015 Timor-Lest migration report, the foreigners represented only 0.8% of the resident population of Timor-Leste. This clearly suggests that international migration has negligible impact on population change and therefore the assumption of *negligible or zero net international migration* could be retained for the projections in this context. This is not to say that migration will not take place during the projection years, but probably its level will be low and hence, unlikely to impact on the population size and structure.

2.5 Subnational projections – Base Populations and Components

The projections of each of the 14 provinces in which Timor-Leste is administratively divided, were conducted with the same method, data source and software used in the national projections. Differences in the accuracy of national and subnational projections suggest that, in general, the latter be extended for substantial fewer years into the future (Shryock H., J. Siegel, 1976). Hence, these provincial projections will be up to year 2035. It is also important to mention that only the Recommended population projection will be disaggregated into provinces.

The projected municipal populations by age and sex ware adjusted so as its sum was equal to the national projected population. The adjustment was done using the PAS Excel spreadsheet CTBL32. This program is designed to adjust subpopulations by age to the total population also by age. The spreadsheet proportionally adjusts the subpopulation totals to add to the country total.

2.5.1 Fertility

For each of the municipality, the level and the age pattern of the fertility were obtained from the National Statistical Institute of Timor-Leste (INETL) fertility thematic report. Just as at the national level, the level of fertility was projected using PAS spreadsheet TFRLGST (Table 8). Just as at national level, the age specific fertility patterns would attain the pattern of the Southeast Asian Fertility schedule (World population Prospects, 2022). Tables 8, 9 and 10 show the estimates of the fertility projection components, The source of these estimates is the 2022 Census.

As can be seen, total fertility rates (TFR), vary substantially among provinces. Mortality also fluctuates markedly among provinces as indicated by life expectancy at birth (by sex). The lower mortality is observed in Dili a life expectancy.

Table 8: Projected Total Fertility Rates (TFR) by Municipality, 2022

Projected TFR	Aileu	Ainaro	Atauro	Baucau	Bobonaro	Covalima	Dili	Ermera	Lautem	Liquiçá	Manatuto	Manufahi	Oecussi	Viqueque
2022	4.21	4.75	2.94	4.13	3.99	3.91	3.00	4.14	4.54	3.93	3.87	3.99	4.00	4.13
2023	3.06	2.79	3.85	3.83	3.38	3.10	2.66	3.21	3.63	3.62	3.62	3.50	3.24	3.78
2025	2.59	2.59	3.03	3.34	2.80	2.70	2.32	2.76	2.99	3.14	3.14	2.99	2.77	3.22
2030	2.45	2.53	2.65	2.99	2.55	2.56	2.18	2.64	2.73	2.85	2.85	2.73	2.59	2.83
2035	2.41	2.51	2.49	2.77	2.45	2.52	2.13	2.61	2.64	2.68	2.68	2.60	2.53	2.57
2040	2.40	2.50	2.43	2.62	2.42	2.51	2.11	2.60	2.61	2.59	2.59	2.54	2.51	2.41
2045	2.40	2.50	2.41	2.54	2.41	2.50	2.10	2.60	2.60	2.55	2.55	2.52	2.50	2.32
2050	**2.41**	**2.49**	**2.2**	**2.45**	**2.41**	**2.50**	**2.10**	**2.6**	**2.60**	**2.55**	**2.55**	**2.52**	**2.50**	**2.32**

Table 9: Age specific fertility rates and Toral Fertility rates by Municipality, 2022

Age group	Aileu	Ainaro	Atauro	Baucau	Bobonaro	Covalima	Dili	Ermera	Lautém	Liquiça	Manatuto	Manufahi	Oe-Cusse	Viqueque
15 - 19	0.044	0.044	0.016	0.042	0.039	0.058	0.018	0.040	0.038	0.041	0.044	0.053	0.059	0.058
20 - 24	0.178	0.172	0.093	0.165	0.170	0.179	0.091	0.155	0.174	0.153	0.170	0.183	0.180	0.191
25 - 29	0.215	0.237	0.138	0.209	0.203	0.200	0.165	0.204	0.229	0.196	0.205	0.212	0.201	0.213
30 - 34	0.198	0.222	0.128	0.190	0.179	0.170	0.164	0.189	0.221	0.180	0.174	0.177	0.169	0.181
35 - 39	0.143	0.163	0.134	0.137	0.126	0.110	0.106	0.139	0.160	0.127	0.116	0.109	0.110	0.123
40 - 44	0.047	0.077	0.052	0.063	0.058	0.046	0.041	0.070	0.065	0.064	0.050	0.047	0.055	0.044
45 - 49	0.017	0.034	0.027	0.021	0.024	0.020	0.015	0.020	0.021	0.025	0.015	0.018	0.026	0.018
TFR	**4.21**	**4.75**	**2.94**	**4.13**	**3.99**	**3.91**	**3.00**	**4.14**	**4.54**	**3.93**	**3.87**	**3.99**	**4.00**	**4.13**

Table 10: Age specific fertility rates and Toral Fertility rates by Municipality, 2035

Age group	Aileu	Ainaro	Atauro	Baucau	Bobonaro	Covalima	Dili	Ermera	Lautém	Liquiça	Manatuto	Manufahi	Oe-Cusse	Viqueque
15 - 19	**0.025**	**0.023**	**0.012**	**0.025**	**0.024**	**0.037**	**0.013**	**0.025**	**0.022**	**0.028**	**0.030**	**0.034**	**0.037**	**0.036**
20 - 24	0.102	0.090	0.069	0.098	0.104	0.115	0.064	0.098	0.101	0.105	0.118	0.119	0.114	0.118
25 - 29	0.123	0.124	0.103	0.124	0.124	0.129	0.117	0.128	0.133	0.134	0.142	0.138	0.127	0.132
30 - 34	0.113	0.117	0.096	0.112	0.110	0.109	0.117	0.119	0.128	0.123	0.121	0.115	0.107	0.112
35 - 39	0.082	0.085	0.100	0.081	0.078	0.071	0.075	0.087	0.093	0.087	0.080	0.071	0.070	0.076
40 - 44	0.027	0.040	0.039	0.037	0.035	0.030	0.029	0.044	0.038	0.044	0.035	0.030	0.034	0.027
45 - 49	0.010	0.018	0.020	0.013	0.015	0.013	0.010	0.013	0.012	0.017	0.010	0.012	0.017	0.011
TFR	**2.41**	**2.49**	**2.20**	**2.45**	**2.45**	**2.52**	**2.13**	**2.57**	**2.64**	**2.69**	**2.68**	**2.60**	**2.53**	**2.57**

2.5.2 Mortality inputs for municipal projections

Table 11 and Table 12 provide information on probabilities of dying for each sex by municipality. These were generated from the mortality thematic report of the 2022 census. (GDS, 2024). For projections, probabilities served as one of the functions to enable to determine the mortality level. The mortality level is specified by the user by designating a mortality value for one of four life table functions (nmx, nqx, lx or ex) for any one of the age groups. The iterative procedure is carried out by the procedure MATCH.

2.5.3 internal migration

Interprovincial migration was estimated from the census question on place of residence in the previous year; hence, the data refers to annual migration rates. The data suggest that migration occurs, but it is not substantial. Some provinces show negative rates, meaning that they lose population. On the contrary, some provinces gain population. It is important to repeat that migration among provinces is limited and, therefore, it does not seem to become a major component of population growth in the near future.

Table 11: Male probability of dying by Municipality, 2022 Timor-Leste census

Age	Aileu	Ainaro	Atauro	Baucau	Bobonaro	Covalima	Dili	Ermera	Lautem	Liquiçá	Manatuto	Manufahi	Oecussi	Viqueque
<1	0.019	0.068	0.044	0.061	0.030	0.048	0.049	0.061	0.046	0.041	0.049	0.049	0.053	0.056
1-4	0.057	0.030	0.058	0.075	0.041	0.060	0.018	0.075	0.013	0.051	0.062	0.062	0.020	0.070
5-9	0.005	0.007	0.012	0.028	0.009	0.021	0.004	0.028	0.005	0.016	0.013	0.022	0.005	0.015
10-14	0.002	0.003	0.007	0.009	0.005	0.010	0.002	0.009	0.003	0.007	0.006	0.009	0.002	0.007
15-19	0.008	0.004	0.010	0.011	0.008	0.015	0.003	0.011	0.005	0.011	0.009	0.012	0.003	0.010
20-24	0.004	0.005	0.013	0.012	0.011	0.019	0.003	0.012	0.007	0.014	0.011	0.014	0.003	0.012
25-29	0.015	0.006	0.015	0.012	0.010	0.017	0.004	0.012	0.009	0.012	0.010	0.012	0.004	0.011
30-34	0.020	0.007	0.017	0.012	0.011	0.017	0.005	0.012	0.010	0.012	0.010	0.012	0.005	0.011
35-39	0.006	0.011	0.019	0.013	0.012	0.020	0.007	0.013	0.014	0.014	0.011	0.013	0.008	0.011
40-44	0.016	0.017	0.023	0.014	0.016	0.025	0.012	0.014	0.020	0.018	0.015	0.016	0.013	0.015
45-49	0.013	0.027	0.029	0.016	0.023	0.034	0.020	0.016	0.030	0.024	0.020	0.022	0.021	0.020
50-54	0.037	0.044	0.040	0.020	0.034	0.049	0.035	0.020	0.047	0.034	0.029	0.030	0.036	0.028
55-59	0.064	0.070	0.059	0.027	0.050	0.067	0.057	0.027	0.071	0.048	0.040	0.041	0.059	0.038
60-64	0.073	0.112	0.081	0.038	0.072	0.091	0.094	0.038	0.110	0.066	0.056	0.055	0.098	0.053
65-69	0.058	0.167	0.103	0.057	0.108	0.128	0.144	0.057	0.165	0.095	0.082	0.077	0.148	0.077
70-74	0.227	0.245	0.125	0.087	0.171	0.188	0.214	0.087	0.241	0.144	0.126	0.114	0.221	0.117
75-79	0.350	0.336	0.166	0.139	0.274	0.281	0.302	0.139	0.339	0.226	0.204	0.178	0.309	0.188
80 +	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Table 12: Female probability of dying by Municipality, 2022 Timor-Leste census.

Age	Aileu	Ainaro	Atauro	Baucau	Bobonaro	Covalima	Dili	Ermera	Lautem	Liquiçá	Manatuto	Manufahi	Oecussi	Viqueque
<1	0.028	0.062	0.042	0.044	0.038	0.035	0.046	0.044	0.048	0.032	0.061	0.026	0.051	0.050
1-4	0.044	0.026	0.028	0.060	0.048	0.048	0.015	0.060	0.018	0.043	0.025	0.035	0.018	0.067
5-9	0.003	0.005	0.008	0.020	0.011	0.041	0.003	0.020	0.005	0.012	0.005	0.018	0.004	0.019
10-14	0.001	0.002	0.002	0.008	0.006	0.013	0.001	0.008	0.003	0.006	0.002	0.008	0.002	0.007
15-19	0.006	0.003	0.005	0.010	0.008	0.015	0.002	0.010	0.005	0.008	0.003	0.011	0.002	0.010
20-24	0.003	0.004	0.005	0.011	0.010	0.017	0.002	0.011	0.006	0.011	0.004	0.014	0.003	0.012
25-29	0.010	0.005	0.009	0.011	0.011	0.016	0.003	0.011	0.008	0.011	0.004	0.013	0.003	0.010
30-34	0.013	0.006	0.014	0.012	0.011	0.016	0.004	0.012	0.010	0.013	0.006	0.012	0.004	0.010
35-39	0.004	0.008	0.014	0.013	0.013	0.017	0.005	0.013	0.013	0.014	0.008	0.014	0.006	0.011
40-44	0.009	0.011	0.025	0.014	0.015	0.018	0.008	0.014	0.018	0.016	0.011	0.018	0.009	0.013
45-49	0.007	0.017	0.029	0.017	0.019	0.021	0.012	0.017	0.025	0.020	0.017	0.025	0.014	0.018
50-54	0.019	0.029	0.047	0.022	0.026	0.027	0.022	0.022	0.037	0.028	0.028	0.034	0.024	0.025
55-59	0.032	0.049	0.073	0.031	0.037	0.036	0.037	0.031	0.055	0.040	0.048	0.047	0.041	0.033
60-64	0.035	0.082	0.079	0.045	0.056	0.051	0.065	0.045	0.085	0.061	0.080	0.065	0.070	0.045
65-69	0.027	0.130	0.132	0.068	0.090	0.073	0.107	0.068	0.133	0.097	0.128	0.093	0.114	0.063
70-74	0.110	0.203	0.191	0.107	0.120	0.110	0.172	0.107	0.204	0.158	0.200	0.140	0.182	0.094
75-79	0.176	0.301	0.267	0.174	0.187	0.169	0.260	0.174	0.299	0.260	0.298	0.219	0.274	0.150
80 +	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

To be consistent of with the 2015 projection at municipal level (GSD, 2015), MORTPAK MATCH application was employed extrapolate life expectancies to the future desired level of life expectancies with the user defined intervals given the level of mortality and pattern of mortality. The United Nations General model life table was used to project life tables for males and females. The resulting life tables are presented in Table 13.

Table 13: Projection of life expectancy at birth by sex and Municipality, 2015-2050

		2022	2025	2030	2035
Municipality					
Aileu	Male	64.7	67.6	69.0	72.3
	Female	68.0	68.9	72.9	76.1
Ainaro	Male	65.1	64.9	66.1	67.4
	Female	68.7	68.2	69.6	71.1
Atauro	Male	69.9	65.7	67.3	68.9
	Female	67.4	68.4	69.0	70.6
Baucau	Male	71.3	73.7	76.9	77.9
	Female	71.1	73.7	76.8	79.1
Bobonaro	Male	68.7	68.3	69.6	70.8
	Female	75.3	70.0	71.2	72.5
Covalima	Male	62.0	61.8	63.2	64.6
	Female	69.7	66.9	68.2	69.6
Dili	Male	62.0	69.7	71.3	72.8
	Female	73.5	72.9	74.5	76.0
Ermera	Male	71.1	73.7	76.4	77.9
	Female	71.3	73.7	76.9	79.1
Lautem	Male	67.0	66.9	67.9	68.8
	Female	68.6	69.5	70.8	72.1
Liquiçá	Male	67.8	66.8	68.1	69.5
	Female	67.9	68.7	70.4	72.2
Manatuto	Male	68.9	67.5	69.1	70.8
	Female	69.1	69.0	70.8	72.5
Manufahi	Male	69.0	66.9	68.7	70.6
	Female	70.1	69.1	71.0	72.9
Oecussi	Male	68.9	68.7	72.7	70.9
	Female	72.0	71.4	70.0	73.9
Viqueque	Male	68.5	66.6	68.0	69.4
	Female	72.1	68.4	70.0	71.6

3. Results of National Population Projections

A summary of the total projected population by sex based on the three variants (high, medium and low) for the period 2022 to 2050 is presented in Tables 14, 15 and 16. The high variant projections show that the total population of Timor-Leste will reach 2,159,658 by 2050, an increase of 0.8 million people. The medium (the recommended) and low variant projections show that the country's population will increase by 626,676 and 518,830, respectively in 2050.

Table 14: Projected population and selected demographic indicators, high fertility scenario, Timor-Leste, 2022-2050

Year	Total Population	Annual growth Rate	Births	Crude Birth Rate	Deaths	Crude Death Rate	Life Expectancy		
							Total	Male	Female
2022	1,357,289		43,112	31.8	9,909	7.3	67.2	65.1	69.3
2023	1,391,293	2.5	42,832	30.8	8,028	5.8	72.6	70.4	74.9
2024	1,425,741	2.4	42,475	29.8	8,382	5.9	72.6	70.5	74.9
2025	1,459,460	2.3	42,016	28.8	8,671	5.9	72.7	70.5	75.0
2026	1,492,398	2.2	41,454	27.8	8,922	6.0	72.8	70.6	75.1
2027	1,524,487	2.1	40,785	26.8	9,138	6.0	72.8	70.7	75.1
2028	1,555,959	2.0	40,633	26.1	9,335	6.0	72.9	70.7	75.2
2029	1,587,045	2.0	40,404	25.5	9,530	6.0	73.0	70.8	75.3
2030	1,617,669	1.9	40,092	24.8	9,719	6.0	73.0	70.8	75.4
2031	1,647,749	1.8	39,687	24.1	9,900	6.0	73.1	70.9	75.4
2032	1,677,197	1.7	39,182	23.4	10,074	6.0	73.2	70.9	75.5
2033	1,706,183	1.7	39,111	22.9	10,247	6.0	73.2	71.0	75.6
2034	1,734,885	1.7	38,970	22.5	10,429	6.0	73.3	71.1	75.6
2035	1,763,230	1.6	38,762	22.0	10,614	6.0	73.4	71.1	75.7
2036	1,791,149	1.6	38,489	21.5	10,800	6.0	73.4	71.2	75.8
2037	1,818,587	1.5	38,176	21.0	10,987	6.0	73.5	71.2	75.8
2038	1,845,678	1.5	38,178	20.7	11,184	6.1	73.5	71.3	75.9
2039	1,872,533	1.4	38,106	20.3	11,391	6.1	73.6	71.4	76.0
2040	1,899,077	1.4	37,981	20.0	11,608	6.1	73.7	71.4	76.0
2041	1,925,260	1.4	37,834	19.7	11,841	6.2	73.7	71.5	76.1
2042	1,951,085	1.3	37,750	19.3	12,094	6.2	73.8	71.5	76.2
2043	1,976,749	1.3	38,048	19.2	12,375	6.3	73.9	71.6	76.2
2044	2,002,390	1.3	38,286	19.1	12,678	6.3	73.9	71.7	76.3
2045	2,027,934	1.3	38,473	19.0	12,992	6.4	74.0	71.7	76.4
2046	2,053,334	1.2	38,629	18.8	13,310	6.5	74.0	71.8	76.4
2047	2,078,579	1.2	38,798	18.7	13,628	6.6	74.1	71.8	76.5
2048	2,103,694	1.2	39,006	18.5	13,947	6.6	74.2	71.9	76.6
2049	2,128,678	1.2	39,177	18.4	14,269	6.6	74.2	71.9	76.6
2050	2,159,658	1.2	39,349	18.2	2,299	6.6	74.3	71.9	78.6

Continued ….

Table 14: Projected population and selected demographic indicators, high fertility scenario, Timor-Leste, 2022-2050

Year	Infant mortality Rate			TFR	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Median Age		
	Total	Male	Female					Total	Male	Female
2022	42.6	46.9	38.0	4.2	70.0	61.1	8.9	21.5	21.4	21.7
2023	32.2	35.7	28.5	4.1	69.3	60.3	9.0	21.7	21.6	21.9
2024	32.1	35.6	28.4	3.9	68.5	59.5	9.0	21.9	21.7	22.1
2025	32.0	35.4	28.3	3.8	67.7	58.6	9.0	22.1	22.0	22.3
2026	31.8	35.3	28.2	3.6	66.9	57.8	9.1	22.4	22.2	22.5
2027	31.7	35.2	28.1	3.5	66.1	56.9	9.2	22.6	22.5	22.8
2028	31.6	35.1	28.0	3.4	65.4	56.1	9.3	22.9	22.7	23.1
2029	31.5	35.0	27.9	3.3	64.8	55.3	9.5	23.2	23.0	23.3
2030	31.4	34.8	27.8	3.2	64.3	54.6	9.7	23.5	23.3	23.6
2031	31.3	34.7	27.7	3.1	63.9	53.9	10.0	23.8	23.6	23.9
2032	31.2	34.6	27.5	3.0	63.5	53.4	10.2	24.1	23.9	24.2
2033	31.1	34.5	27.4	2.9	63.3	52.9	10.4	24.4	24.3	24.6
2034	30.9	34.4	27.3	2.9	63.2	52.6	10.7	24.7	24.6	24.9
2035	30.8	34.3	27.2	2.8	63.2	52.2	10.9	25.1	24.9	25.2
2036	30.7	34.1	27.1	2.8	62.9	51.8	11.2	25.4	25.2	25.5
2037	30.6	34.0	27.0	2.7	62.2	50.8	11.3	25.7	25.6	25.9
2038	30.5	33.9	26.9	2.7	60.7	49.2	11.4	26.0	25.9	26.2
2039	30.4	33.8	26.8	2.6	59.3	47.8	11.5	26.4	26.2	26.5
2040	30.3	33.7	26.7	2.6	58.0	46.4	11.5	26.7	26.6	26.9
2041	30.2	33.6	26.6	2.6	56.8	45.1	11.6	27.0	26.9	27.2
2042	30.1	33.4	26.5	2.5	55.7	44.0	11.7	27.3	27.2	27.5
2043	29.9	33.3	26.4	2.5	54.8	43.0	11.8	27.7	27.5	27.8
2044	29.8	33.2	26.3	2.5	53.9	42.0	11.9	28.0	27.8	28.1
2045	29.7	33.1	26.2	2.5	53.2	41.2	12.0	28.2	28.1	28.4
2046	29.6	33.0	26.1	2.5	52.6	40.4	12.1	28.5	28.3	28.7
2047	29.5	32.9	26.0	2.5	52.1	39.8	12.3	28.7	28.6	28.9
2048	29.4	32.7	25.9	2.4	51.8	39.2	12.5	29.0	28.8	29.2
2049	29.3	32.6	25.8	2.4	51.5	38.7	12.8	29.2	29.0	29.4
2050	28.2	31.9	24.7	2.4	51.6	38.3	13.3	29.5	29.3	29.6

Table 15: Projected population and selected demographic indicators, medium fertility scenario, Timor-Leste, 2022-2050

Year	Total Population	Annual growth Rate	Births	Crude Birth Rate	Deaths	Crude Death Rate	Life Expectancy		
							Total	Male	Female
2022	1,357,289		37,119	27.3	9,909	7.3	67.2	65.1	69.3
2023	1,385,030	2.0	36,092	26.1	8,028	5.8	72.6	70.4	74.9
2024	1,412,603	1.9	34,951	24.7	8,382	5.9	72.6	70.5	74.9
2025	1,438,734	1.8	33,678	23.4	8,671	5.9	72.7	70.5	75.0
2026	1,463,989	1.7	33,617	23.0	8,922	6.0	72.8	70.6	75.1
2027	1,488,949	1.7	33,492	22.5	9,138	6.0	72.8	70.7	75.1
2028	1,513,553	1.6	33,301	22.0	9,335	6.0	72.9	70.7	75.2
2029	1,537,744	1.6	33,044	21.5	9,530	6.0	73.0	70.8	75.3
2030	1,561,458	1.5	32,715	21.0	9,719	6.0	73.0	70.8	75.4
2031	1,584,856	1.5	32,769	20.7	9,900	6.0	73.1	70.9	75.4
2032	1,608,097	1.4	32,758	20.4	10,074	6.0	73.2	70.9	75.5
2033	1,631,112	1.4	32,678	20.0	10,247	6.0	73.2	71.0	75.6
2034	1,653,835	1.4	32,540	19.7	10,429	6.0	73.3	71.1	75.6
2035	1,676,208	1.3	32,344	19.3	10,614	6.0	73.4	71.1	75.7
2036	1,698,310	1.3	32,374	19.1	10,800	6.0	73.4	71.2	75.8
2037	1,720,235	1.3	32,376	18.8	10,987	6.0	73.5	71.2	75.8
2038	1,741,925	1.2	32,298	18.5	11,184	6.1	73.5	71.3	75.9
2039	1,763,303	1.2	32,154	18.2	11,391	6.1	73.6	71.4	76.0
2040	1,784,304	1.2	31,958	17.9	11,608	6.1	73.7	71.4	76.0
2041	1,804,999	1.1	31,978	17.7	11,841	6.2	73.7	71.5	76.1
2042	1,825,505	1.1	32,063	17.6	12,094	6.2	73.8	71.5	76.2
2043	1,845,796	1.1	32,074	17.4	12,375	6.3	73.9	71.6	76.2
2044	1,865,786	1.1	32,019	17.2	12,678	6.3	73.9	71.7	76.3
2045	1,885,400	1.0	31,901	16.9	12,992	6.4	74.0	71.7	76.4
2046	1,904,634	1.0	31,849	16.7	13,310	6.5	74.0	71.8	76.4
2047	1,923,535	1.0	31,832	16.5	13,628	6.6	74.1	71.8	76.5
2048	1,942,102	1.0	31,781	16.4	13,947	6.6	74.2	71.9	76.6
2049	1,960,301	0.9	31,694	16.2	14,269	6.7	74.2	71.9	76.6
2050	1,983,965	0.9	31,599	15.9	14,299	6.6	74.2	72.1	77.2

Continued

Table 15: Projected population and selected demographic indicators, medium fertility scenario, Timor-Leste, 2022-2050

Year	Infant mortality Rate			TFR	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Median Age		
	Total	Male	Female					Total	Male	Female
2022	42.6	46.9	38.0	3.64	70.0	61.1	8.9	21.5	21.4	21.7
2023	32.2	35.7	28.5	3.44	68.5	59.5	9.0	21.8	21.7	22.0
2024	32.1	35.6	28.4	3.23	66.9	57.9	9.0	22.1	22.0	22.3
2025	32.0	35.4	28.3	3.03	65.3	56.2	9.0	22.5	22.3	22.7
2026	31.8	35.3	28.2	2.94	63.7	54.6	9.1	22.9	22.7	23.0
2027	31.7	35.2	28.1	2.86	60.9	51.6	9.3	23.2	23.1	23.4
2028	31.6	35.1	28.0	2.77	59.7	50.2	9.5	23.6	23.4	23.8
2029	31.5	35.0	27.9	2.69	58.6	48.9	9.7	24.0	23.8	24.2
2030	31.4	34.8	27.8	2.60	58.6	48.9	9.7	24.4	24.2	24.6
2031	31.3	34.7	27.7	2.55	59.7	50.2	9.5	24.8	24.6	25.0
2032	31.2	34.6	27.5	2.50	57.6	47.7	10.0	25.2	25.0	25.4
2033	31.1	34.5	27.4	2.45	56.1	45.7	10.4	25.6	25.4	25.8
2034	30.9	34.4	27.3	2.40	55.6	44.9	10.7	26.0	25.8	26.2
2035	30.8	34.3	27.2	2.35	55.1	44.2	10.9	26.4	26.3	26.6
2036	30.7	34.1	27.1	2.32	54.5	43.3	11.2	26.8	26.7	27.0
2037	30.6	34.0	27.0	2.29	53.4	42.1	11.3	27.3	27.1	27.4
2038	30.5	33.9	26.9	2.26	52.4	40.9	11.5	27.7	27.5	27.8
2039	30.4	33.8	26.8	2.23	51.6	40.0	11.6	28.1	27.9	28.3
2040	30.3	33.7	26.7	2.20	50.9	39.2	11.7	28.5	28.3	28.7
2041	30.2	33.6	26.6	2.19	50.3	38.4	11.9	28.9	28.7	29.1
2042	30.1	33.4	26.5	2.17	49.8	37.8	12.0	29.3	29.2	29.5
2043	29.9	33.3	26.4	2.16	49.3	37.1	12.2	29.7	29.6	29.9
2044	29.8	33.2	26.3	2.14	48.9	36.6	12.3	30.1	29.9	30.3
2045	29.7	33.1	26.2	2.13	48.5	36.0	12.5	30.5	30.3	30.7
2046	29.6	33.0	26.1	2.12	48.3	35.6	12.7	30.9	30.7	31.1
2047	29.5	32.9	26.0	2.11	48.0	35.1	12.9	31.3	31.1	31.5
2048	29.4	32.7	25.9	2.11	47.9	34.7	13.2	31.7	31.5	31.9
2049	29.3	32.6	25.8	2.10	47.8	34.3	13.6	32.0	31.8	32.2
2050	29.1	32.1	25.4	2.09	48.0	34.0	14.1	32.4	32.2	32.6

Table 16: Projected population and selected demographic indicators, low fertility scenario, Timor-Leste, 2022-2050

Year	Total Population	Annual growth Rate	Births	Crude Birth Rate	Deaths	Crude Death Rate	Life Expectancy		
							Total	Male	Female
2022	1,357,289		31,902	23.5	9,909	7.3	67.2	65.1	69.3
2023	1,380,306	1.7	31,705	23.0	7,664	5.6	72.6	70.4	74.9
2024	1,404,107	1.7	31,452	22.4	7,891	5.6	72.6	70.5	74.9
2025	1,427,390	1.6	31,124	21.8	8,117	5.7	72.7	70.5	75.0
2026	1,450,091	1.5	30,719	21.2	8,325	5.7	72.8	70.6	75.1
2027	1,472,152	1.5	30,237	20.5	8,510	5.8	72.8	70.7	75.1
2028	1,493,720	1.4	30,108	20.2	8,698	5.8	72.9	70.7	75.2
2029	1,514,946	1.4	29,922	19.8	8,880	5.9	73.0	70.8	75.3
2030	1,535,775	1.3	29,672	19.3	9,055	5.9	73.0	70.8	75.4
2031	1,556,149	1.3	29,353	18.9	9,225	5.9	73.1	70.9	75.4
2032	1,576,001	1.2	28,960	18.4	9,386	6.0	73.2	70.9	75.5
2033	1,595,470	1.2	28,919	18.1	9,558	6.0	73.2	71.0	75.6
2034	1,614,696	1.2	28,827	17.9	9,736	6.0	73.3	71.1	75.6
2035	1,633,626	1.2	28,685	17.6	9,918	6.1	73.4	71.1	75.7
2036	1,652,207	1.1	28,497	17.2	10,100	6.1	73.4	71.2	75.8
2037	1,670,401	1.1	28,278	16.9	10,287	6.2	73.5	71.2	75.8
2038	1,688,245	1.1	28,173	16.7	10,475	6.2	73.5	71.3	75.9
2039	1,705,768	1.0	28,018	16.4	10,670	6.3	73.6	71.4	76.0
2040	1,722,919	1.0	27,827	16.2	10,873	6.3	73.7	71.4	76.0
2041	1,739,661	1.0	27,622	15.9	11,094	6.4	73.7	71.5	76.1
2042	1,755,993	0.9	27,469	15.6	11,334	6.5	73.8	71.5	76.2
2043	1,771,935	0.9	27,341	15.4	11,592	6.5	73.9	71.6	76.2
2044	1,787,467	0.9	27,179	15.2	11,865	6.6	73.9	71.7	76.3
2045	1,802,544	0.8	26,988	15.0	12,148	6.7	74.0	71.7	76.4
2046	1,817,139	0.8	26,782	14.7	12,434	6.8	74.0	71.8	76.4
2047	1,831,252	0.8	26,597	14.5	12,720	7.0	74.1	71.8	76.5
2048	1,844,863	0.7	26,350	14.3	13,004	7.1	74.2	71.9	76.6
2049	1,857,936	0.7	26,087	14.0	13,289	7.2	74.2	71.9	76.6
2050	1,876,119	1.3	25,831	13.8	13,264	1.2	74.2	72.1	77.2

continued

Table 16: Projected population and selected demographic indicators, low fertility scenario, Timor-Leste, 2022-2050

Year	Infant mortality Rate			TFR	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Median Age		
	Total	Male	Female					Total	Male	Female
2022	42.6	46.9	38.0	3.1	70.0	61.1	8.9	21.5	21.4	21.7
2023	32.2	35.7	28.5	3.0	67.9	59.0	9.0	21.9	21.8	22.1
2024	32.1	35.6	28.4	2.9	65.9	56.9	9.0	22.3	22.1	22.5
2025	32.0	35.4	28.3	2.8	64.0	54.9	9.0	22.7	22.5	22.9
2026	31.8	35.3	28.2	2.7	62.1	53.0	9.1	23.1	22.9	23.3
2027	31.7	35.2	28.1	2.6	60.4	51.2	9.2	23.5	23.3	23.7
2028	31.6	35.1	28.0	2.5	58.8	49.5	9.3	23.9	23.8	24.1
2029	31.5	35.0	27.9	2.4	57.4	47.8	9.5	24.4	24.2	24.6
2030	31.4	34.8	27.8	2.4	56.0	46.3	9.7	24.8	24.6	25.0
2031	31.3	34.7	27.7	2.3	54.8	44.8	10.0	25.3	25.1	25.4
2032	31.2	34.6	27.5	2.2	53.7	43.5	10.2	25.7	25.6	25.9
2033	31.1	34.5	27.4	2.2	52.7	42.3	10.4	26.2	26.0	26.4
2034	30.9	34.4	27.3	2.1	51.9	41.2	10.7	26.6	26.5	26.8
2035	30.8	34.3	27.2	2.1	51.2	40.2	10.9	27.1	26.9	27.3
2036	30.7	34.1	27.1	2.0	50.3	39.1	11.2	27.6	27.4	27.8
2037	30.6	34.0	27.0	2.0	48.9	37.6	11.3	28.0	27.9	28.2
2038	30.5	33.9	26.9	2.0	48.3	36.8	11.5	28.5	28.3	28.7
2039	30.4	33.8	26.8	2.0	47.7	36.0	11.7	29.0	28.8	29.2
2040	30.3	33.7	26.7	1.9	47.1	35.2	11.9	29.5	29.3	29.7
2041	30.2	33.6	26.6	1.9	46.5	34.5	12.0	29.9	29.8	30.1
2042	30.1	33.4	26.5	1.9	46.0	33.9	12.2	30.4	30.2	30.6
2043	29.9	33.3	26.4	1.9	45.6	33.2	12.4	30.9	30.7	31.1
2044	29.8	33.2	26.3	1.9	45.2	32.7	12.5	31.4	31.2	31.6
2045	29.7	33.1	26.2	1.8	44.9	32.1	12.7	31.8	31.6	32.0
2046	29.6	33.0	26.1	1.8	44.6	31.6	13.0	32.3	32.1	32.5
2047	29.5	32.9	26.0	1.8	44.4	31.2	13.3	32.8	32.6	33.0
2048	29.4	32.7	25.9	1.8	44.3	30.7	13.6	33.2	33.0	33.4
2049	29.3	32.6	25.8	1.8	44.3	30.3	14.0	33.7	33.5	33.9
2050	29.1	32.4	25.4	1.8	44.5	29.9	14.5	34.2	34.0	34.4

Table 16: Projected population and selected demographic indicators, low fertility scenario, Timor-Leste, 2022-2050

Year	Infant mortality Rate			TFR	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Median Age		
	Total	Male	Female					Total	Male	Female
2022	42.6	46.9	38.0	3.1	70.0	61.1	8.9	21.5	21.4	21.7
2023	32.2	35.7	28.5	3.0	67.9	59.0	9.0	21.9	21.8	22.1
2024	32.1	35.6	28.4	2.9	65.9	56.9	9.0	22.3	22.1	22.5
2025	32.0	35.4	28.3	2.8	64.0	54.9	9.0	22.7	22.5	22.9
2026	31.8	35.3	28.2	2.7	62.1	53.0	9.1	23.1	22.9	23.3
2027	31.7	35.2	28.1	2.6	60.4	51.2	9.2	23.5	23.3	23.7
2028	31.6	35.1	28.0	2.5	58.8	49.5	9.3	23.9	23.8	24.1
2029	31.5	35.0	27.9	2.4	57.4	47.8	9.5	24.4	24.2	24.6
2030	31.4	34.8	27.8	2.4	56.0	46.3	9.7	24.8	24.6	25.0
2031	31.3	34.7	27.7	2.3	54.8	44.8	10.0	25.3	25.1	25.4
2032	31.2	34.6	27.5	2.2	53.7	43.5	10.2	25.7	25.6	25.9
2033	31.1	34.5	27.4	2.2	52.7	42.3	10.4	26.2	26.0	26.4
2034	30.9	34.4	27.3	2.1	51.9	41.2	10.7	26.6	26.5	26.8
2035	30.8	34.3	27.2	2.1	51.2	40.2	10.9	27.1	26.9	27.3
2036	30.7	34.1	27.1	2.0	50.3	39.1	11.2	27.6	27.4	27.8
2037	30.6	34.0	27.0	2.0	48.9	37.6	11.3	28.0	27.9	28.2
2038	30.5	33.9	26.9	2.0	48.3	36.8	11.5	28.5	28.3	28.7
2039	30.4	33.8	26.8	2.0	47.7	36.0	11.7	29.0	28.8	29.2
2040	30.3	33.7	26.7	1.9	47.1	35.2	11.9	29.5	29.3	29.7
2041	30.2	33.6	26.6	1.9	46.5	34.5	12.0	29.9	29.8	30.1
2042	30.1	33.4	26.5	1.9	46.0	33.9	12.2	30.4	30.2	30.6
2043	29.9	33.3	26.4	1.9	45.6	33.2	12.4	30.9	30.7	31.1
2044	29.8	33.2	26.3	1.9	45.2	32.7	12.5	31.4	31.2	31.6
2045	29.7	33.1	26.2	1.8	44.9	32.1	12.7	31.8	31.6	32.0
2046	29.6	33.0	26.1	1.8	44.6	31.6	13.0	32.3	32.1	32.5
2047	29.5	32.9	26.0	1.8	44.4	31.2	13.3	32.8	32.6	33.0
2048	29.4	32.7	25.9	1.8	44.3	30.7	13.6	33.2	33.0	33.4
2049	29.3	32.6	25.8	1.8	44.3	30.3	14.0	33.7	33.5	33.9
2050	29.1	32.4	25.4	1.8	44.5	29.9	14.5	34.2	34.0	34.4

Figure 5 shows that in the high fertility scenario (blue line) the population is expected to grow to 2,159,658; for the medium scenario, the population is expected to reach 1,983,965, while all other factors being equal, lower population projections are likely to result in lower total population of 1,876,119 by 2050.

In the high scenario, total fertility is projected to reach a fertility level that is 0.4 births above the total fertility in the medium scenario. In the low scenario, total fertility is projected to remain 0.2 births below the total fertility in the medium scenario, although this is unlikely to occur.

Figure 5: Projected population for high, medium, and low fertility scenarios.

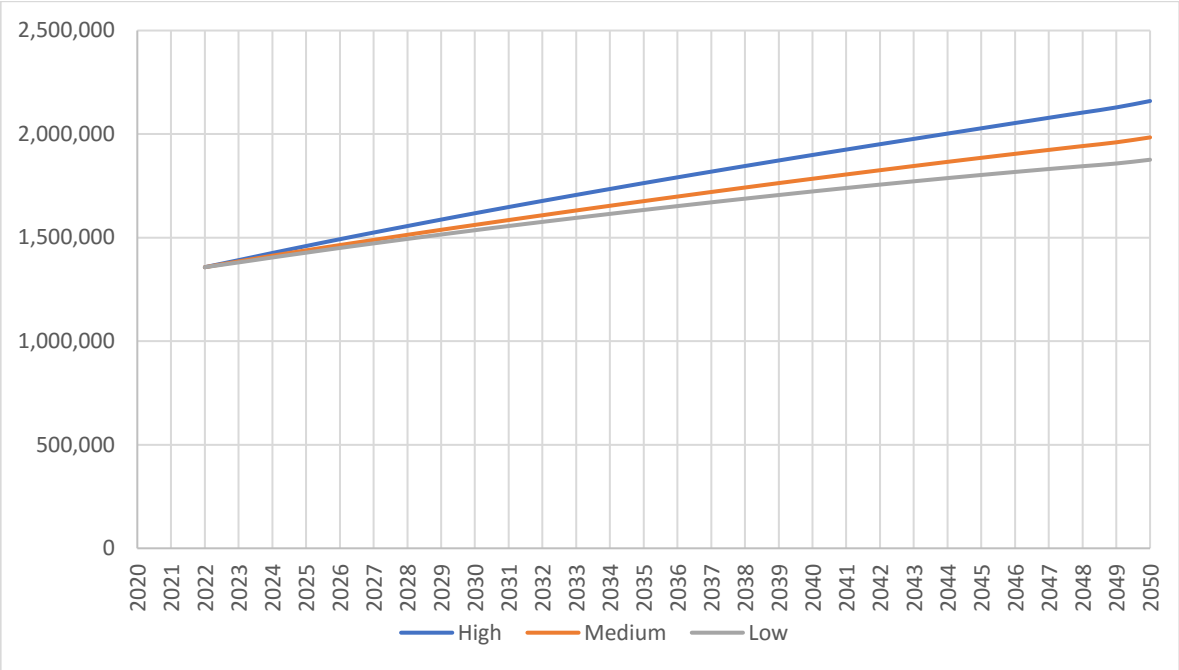


Table 17 shows the population projection for each year, from 2022 to 2050. In the high fertility scenario, 305,941 will be added between 2022 and 2035, while 396428 will be added between 2035 and 2050. In the medium fertility scenario, 318,919 and 307,757 will be added in the same segments of the projection periods. The low fertility scenario is expected to add fewer number of people.

Table 17: Projected population by age and sex, high fertility scenario, Timor-Leste, 2022, 2035 and 2050

2022			
Age group	**Total**	**Male**	**Female**
Total	**1,357,289**	**689,584**	**667,705**
0- 4	162,650	83,267	79,383
5-9	163,292	83,661	79,631
10-14	161,623	82,776	78,847
15-19	149,050	75,991	73,059
20-24	129,877	65,442	64,435
25-29	113,054	56,776	56,278
30-34	96,082	48,214	47,868
35-39	79,774	40,259	39,515
40-44	60,186	30,931	29,255
45-49	51,368	26,731	24,637
50-54	49,598	26,197	23,401
55-59	41,200	21,655	19,545
60-64	28,162	14,423	13,739
65-69	22,627	11,138	11,489
70-74	19,325	9,032	10,293
75-79	18,255	8,101	10,154
80+	11,166	4,990	6,176

2035			
Age group	**Total**	**Male**	**Female**
Total	**1,763,230**	**893,318**	**869,912**
0- 4	187,917	95,555	92,362
5-9	191,605	97,055	94,550
10-14	184,913	93,795	91,118
15-19	154,815	79,340	75,475
20-24	160,708	82,431	78,277
25-29	154,296	78,968	75,328
30-34	137,880	69,978	67,902
35-39	119,208	59,886	59,322
40-44	102,616	51,432	51,184
45-49	86,138	43,169	42,969
50-54	67,960	34,360	33,600
55-59	51,363	26,350	25,013
60-64	45,604	23,569	22,035
65-69	40,971	21,146	19,825
70-74	29,780	14,967	14,813
75-79	19,745	9,407	10,338
80+	27,711	11,910	15,801

2050			
Age group	**Total**	**Male**	**Female**
Total	**2,159,658**	**1,090,151**	**1,069,507**
0- 4	187,694	95,593	92,101
5-9	179,280	90,875	88,405
10-14	178,805	90,691	88,114
15-19	182,173	92,404	89,769
20-24	187,751	95,215	92,536
25-29	180,805	91,733	89,072
30-34	150,702	77,215	73,487
35-39	155,860	79,888	75,972
40-44	148,986	76,140	72,846
45-49	132,258	66,957	65,301
50-54	113,100	56,562	56,538
55-59	95,537	47,504	48,033
60-64	77,859	38,465	39,394
65-69	59,064	29,124	29,940
70-74	42,490	20,949	21,541
75-79	35,409	17,253	18,156
80+	51,885	23,583	28,302

Table 18: Projected population by age and sex, medium fertility scenario, Timor-Leste, 2022, 2035 and 2050

2022			
Age group	**Total**	**Male**	**Female**
Total	**1,357,289**	**689,584**	**667,705**
0- 4	162,650	83,267	79,383
5-9	163,292	83,661	79,631
10-14	161,623	82,776	78,847
15-19	149,050	75,991	73,059
20-24	129,877	65,442	64,435
25-29	113,054	56,776	56,278
30-34	96,082	48,214	47,868
35-39	79,774	40,259	39,515
40-44	60,186	30,931	29,255
45-49	51,368	26,731	24,637
50-54	49,598	26,197	23,401
55-59	41,200	21,655	19,545
60-64	28,162	14,423	13,739
65-69	22,627	11,138	11,489
70-74	19,325	9,032	10,293
75-79	18,255	8,101	10,154
80+	11,166	4,990	6,176

2035			
Age group	**Total**	**Male**	**Female**
Total	**1,676,208**	**849,166**	**827,042**
0- 4	156,258	79,457	76,801
5-9	156,278	79,163	77,115
10-14	164,874	83,631	81,243
15-19	154,819	79,342	75,477
20-24	160,705	82,430	78,275
25-29	154,296	78,967	75,329
30-34	137,880	69,979	67,901
35-39	119,211	59,888	59,323
40-44	102,616	51,432	51,184
45-49	86,137	43,169	42,968
50-54	67,957	34,357	33,600
55-59	51,364	26,350	25,014
60-64	45,607	23,570	22,037
65-69	40,968	21,146	19,822
70-74	29,781	14,967	14,814
75-79	19,747	9,410	10,337
80+	27,710	11,908	15,802

2050			
Age group	**Total**	**Male**	**Female**
Total	**1,983,965**	**1,000,973**	**982,992**
0- 4	153,299	78,072	75,227
5-9	150,912	76,496	74,416
10-14	150,798	76,486	74,312
15-19	151,476	76,833	74,643
20-24	153,137	77,662	75,475
25-29	161,193	81,784	79,409
30-34	150,709	77,218	73,491
35-39	155,853	79,883	75,970
40-44	148,985	76,140	72,845
45-49	132,261	66,960	65,301
50-54	113,099	56,561	56,538
55-59	95,535	47,503	48,032
60-64	77,862	38,468	39,394
65-69	59,060	29,123	29,937
70-74	42,495	20,948	21,547
75-79	35,406	17,251	18,155
80+	51,885	23,585	28,300

Table 19: Projected population by age and sex, low fertility scenario, Timor-Leste, 2022, 2035 and 2050

2022			
Age group	**Total**	**Male**	**Female**
Total	1,357,289	689,584	667,705
0- 4	162,650	83,267	79,383
5-9	163,292	83,661	79,631
10-14	161,623	82,776	78,847
15-19	149,050	75,991	73,059
20-24	129,877	65,442	64,435
25-29	113,054	56,776	56,278
30-34	96,082	48,214	47,868
35-39	79,774	40,259	39,515
40-44	60,186	30,931	29,255
45-49	51,368	26,731	24,637
50-54	49,598	26,197	23,401
55-59	41,200	21,655	19,545
60-64	28,162	14,423	13,739
65-69	22,627	11,138	11,489
70-74	19,325	9,032	10,293
75-79	18,255	8,101	10,154
80+	11,166	4,990	6,176

2035			
Age group	**Total**	**Male**	**Female**
Total	**1,652,207**	**836,770**	**815,437**
0- 4	138,128	70,239	67,889
5-9	140,681	71,265	69,416
10-14	151,395	76,749	74,646
15-19	153,765	78,661	75,104
20-24	160,431	82,305	78,126
25-29	156,198	79,994	76,204
30-34	141,405	71,945	69,460
35-39	122,279	61,485	60,794
40-44	105,707	52,997	52,710
45-49	88,902	44,518	44,384
50-54	71,733	36,137	35,596
55-59	53,241	27,237	26,004
60-64	45,618	23,482	22,136
65-69	41,892	21,611	20,281
70-74	31,798	16,026	15,772
75-79	20,499	9,824	10,675
80+	28,535	12,295	16,240

2050			
Age group	**Total**	**Male**	**Female**
Total	**1,876,119**	**946,223**	**929,896**
0- 4	127,532	64,947	62,585
5-9	129,176	65,478	63,698
10-14	131,979	66,942	65,037
15-19	134,732	68,338	66,394
20-24	139,099	70,546	68,553
25-29	150,448	76,333	74,115
30-34	150,703	77,214	73,489
35-39	155,862	79,884	75,978
40-44	148,984	76,142	72,842
45-49	132,263	66,960	65,303
50-54	113,098	56,561	56,537
55-59	95,527	47,500	48,027
60-64	77,872	38,470	39,402
65-69	59,055	29,121	29,934
70-74	42,492	20,948	21,544
75-79	35,411	17,254	18,157
80+	51,886	23,585	28,301

Figure 11 visualises the age profiles of populations Timor-Leste how the age structure will change over time and will look like in future. The 2022 population pyramid shows that there were many new-borns relative to the number of people at older ages – hence a much broader base. If you now compare the base of the pyramid in 2035 with the projection for 2050, the coming decades will not resemble the past: according to the projections there will be fewer children born by 2050 than in 2022. The base of the future population structure is narrower. The narrowing of the pyramid just above the base is testimony to the fact that fewer children are being born.

As the projections progress (Figure 13) an increase in the number of children – that was responsible for the increase of the population in 2022 from now on is not a widening of the base, rather, it fills up the population above the base: the number of children will barely increase and then start to decline, but the number of people of working age and old age will increase very substantially.

The fertility has declined to replacement level as observed in these the graphs which have taken a shape of a square or "pillar" rather than a pyramid one. These population pyramids represent a stable population that will not change significantly barring any sudden changes to fertility or mortality rates.

Population momentum

Although fertility will decline and will continue doing so during the entire projection period, the population will continue rising. This phenomenon results from the large number of young people associated with former high fertility rates known as *population momentum.* As these youths grow older and move through reproductive ages, the momentum generated by a large fraction of the population at reproductive age meant that the annual number of births will continue to grow until. The column on the percentage of women in reproductive age (15-49 years) gives a clue to understanding this concept.

As shown, the number of births continues to rise during the projection period. The proportion of women in reproductive age is expected to increase in all the municipalities. Despite a decline in the average number of children that women will have, the number of births will continue to increase.

Figure 6: Comparison of population pyramids, high fertility scenario, Timor-Leste 2022, 2035 and 2050

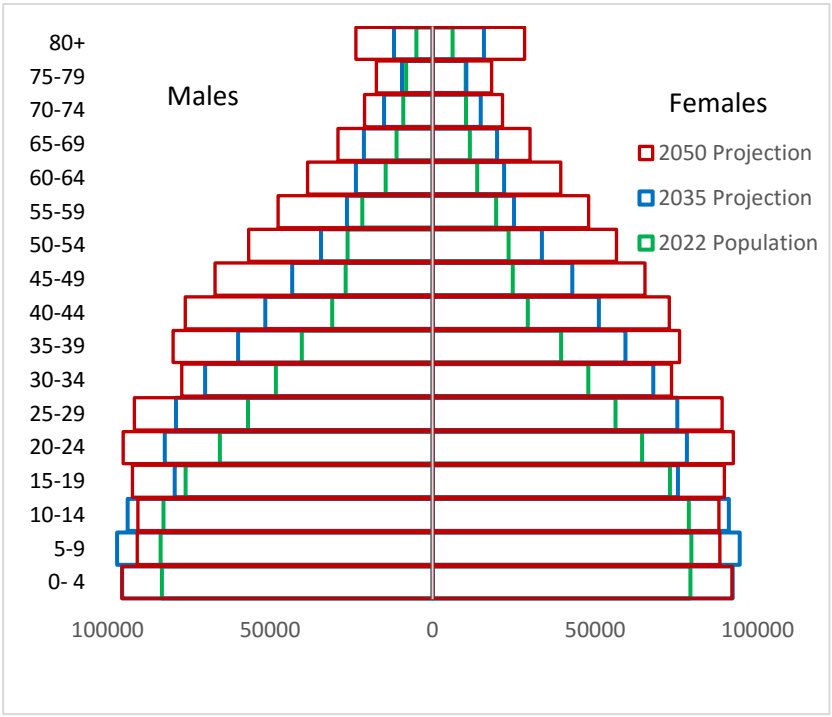


Figure 7: Comparison of population pyramids, medium fertility scenario, Timor-Leste 2022, 2035 and 2050

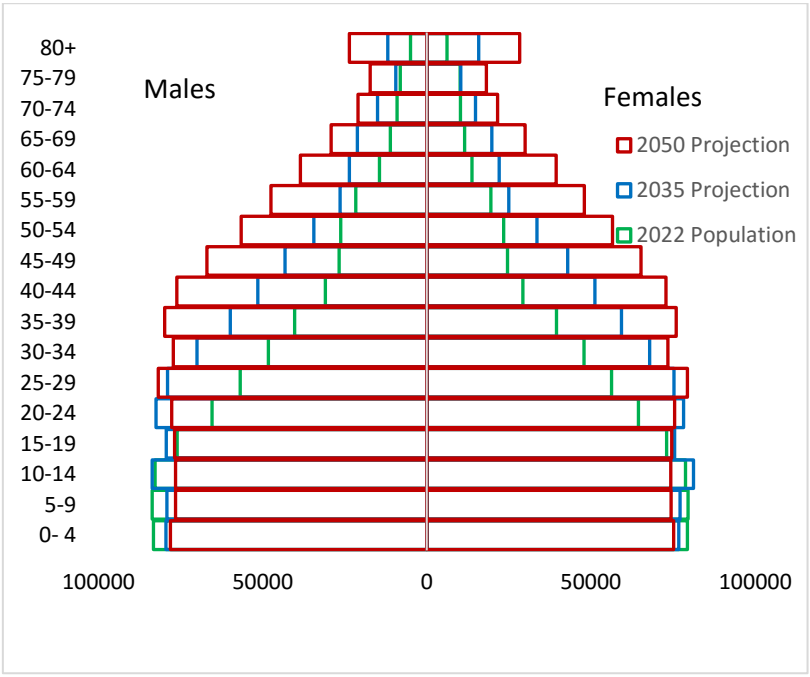


Figure 8: Comparison of population pyramids, low fertility scenario, Timor-Leste 2022, 2035 and 2050

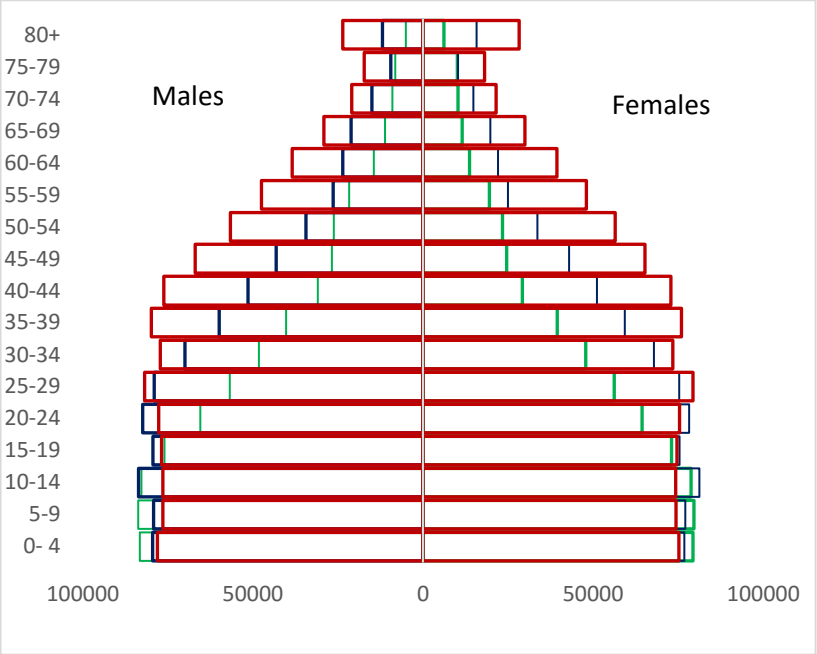
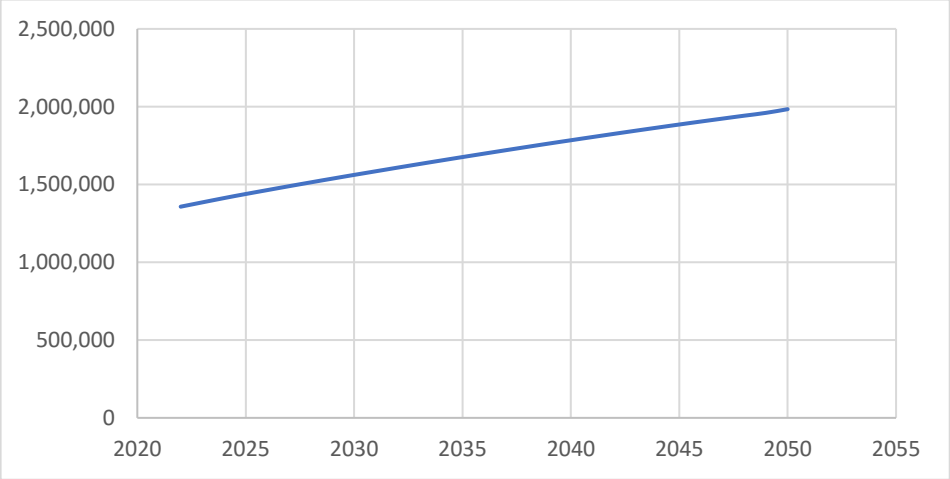


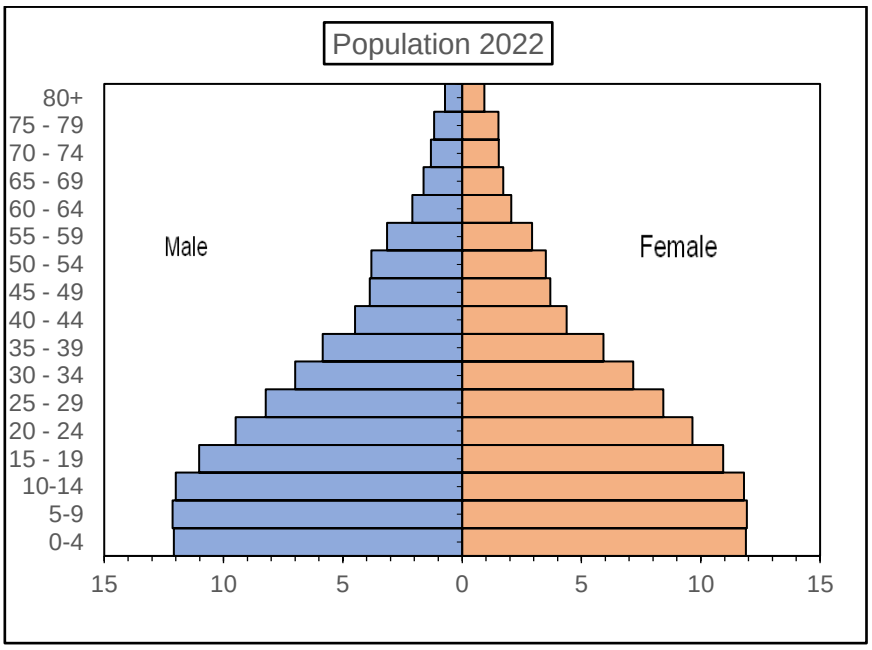
Figure 9 shows the graph corresponding to the population projected for the 28 years considered in this projection, and the Figures 10 to 12 demonstrate how the structure of the population of Timor-Leste will change.

Figure 9: Population projection from year 2022 to year 2050.



Figures 10 show the population pyramid corresponding to the initial projection year (2022), to year 2030, and to the end of the end of the projection period (2050). The graph corresponding to year 2022 has the typical shape of a pyramid. The graph for the population in year 2030 also has the shape of a pyramid, although the base is narrower, which is the result of fertility decline. The graph for year 2050 has lost the shape of a pyramid and has the typical form of a population experiencing a transition from high fertility to a fertility approaching replacement level[9]. As can be seen, the narrow base shows low birth rate as small numbers of children are born. Therefore, narrowing base indicates a falling birth rate. Correspondingly, a broad top or wide apex indicates high proportion of people living longer (Figure 12).

Figure 10: Base population pyramid for 2022, Timor-Leste census



[9] Replacement level fertility is the total fertility rate at which a population exactly replaces itself from one generation to the next, without migration. This rate is roughly 2.1 children per woman for most countries, although it may modestly vary with mortality rates.

Figure 11: Projected population pyramid for 2030, Timor-Leste census.

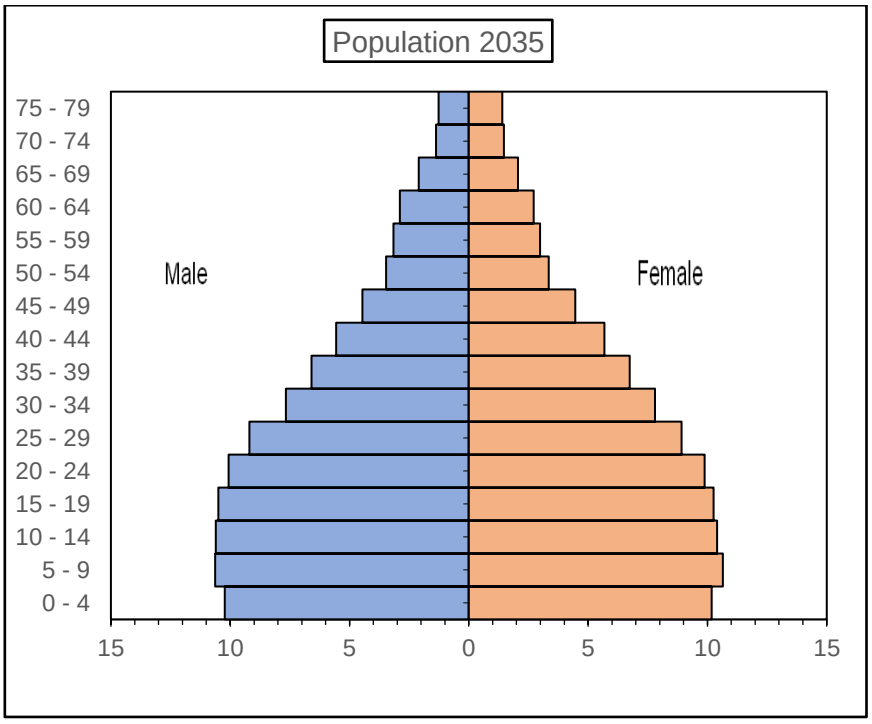


Figure 12: Projected population pyramid for 2050, Timor-Leste census

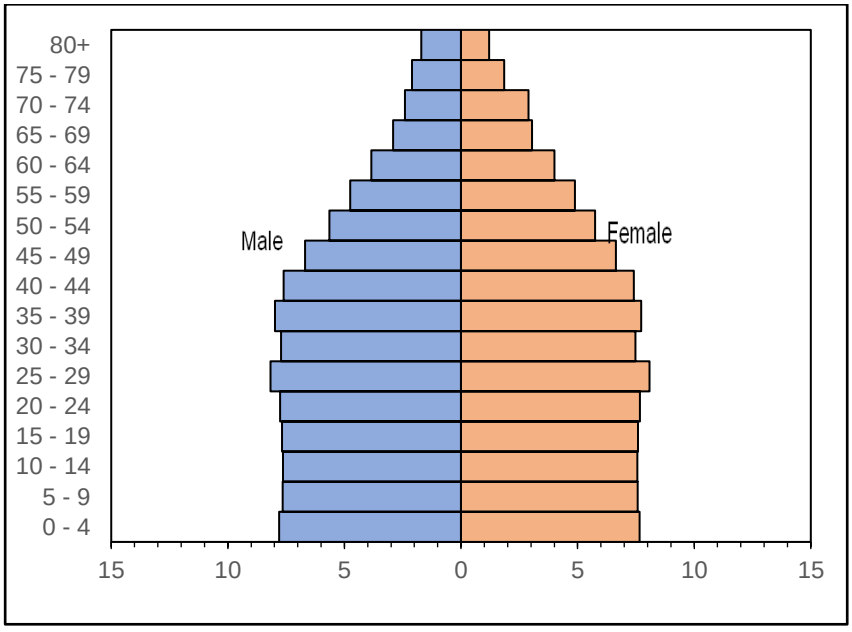
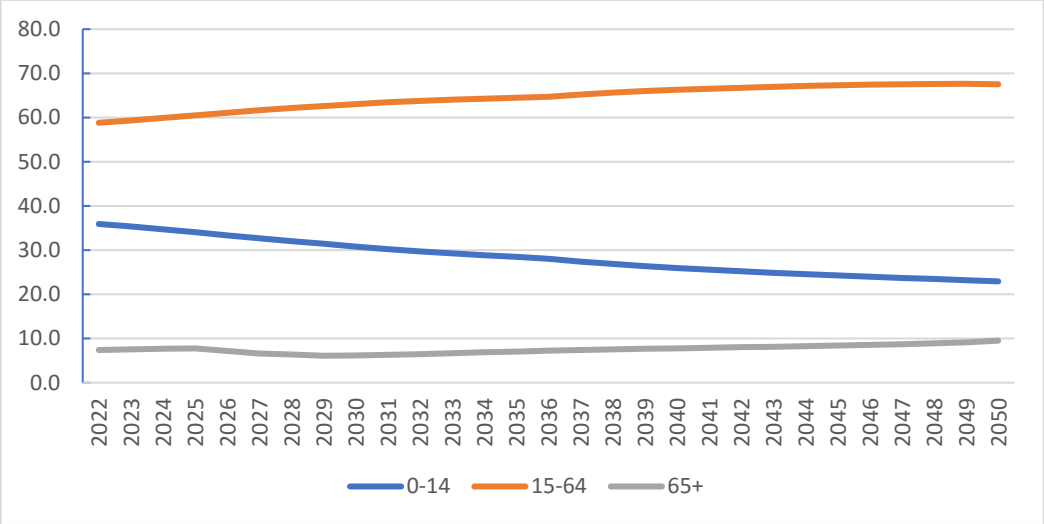


Figure 13 shows the projection of the percentage of the population according to three relevant age groups: the youngest population, 0 to 14 years old, the working age population, 15 to 64 years old, and the elderly population, 65 years and older. The first age group, the youngest, is expected to experience a decline from 35.9 percent to 22.9 percent. On the contrary, the age group 15 to 64 is likely to experience an increase from 58.8 to 66.6 percent. The elderly population, from age 65 and over, is expected to increase from 7.4 to 9.5 percent. The determinants of these changes are mortality and fertility decline.

Figure 13: Projected percentages of the population 0 to 14 years, 15 to 64 years, Timor-Leste, 2022-2050



The age structure of a population affects key socioeconomic issues in a country.

Nations with young populations (high percentage under age 15) need to invest more in schools; as the population gets older, while countries with older (increasing percentage ages 65 and over) need to invest more in the health sector. The age structure can also be related to potential political issues. For example, the rapid growth of a young adult population unable to find employment can lead to unrest.

Figure 6 shows another important indicator of the future characteristics of the population: the age-dependency ratio. This is a measure of the number of dependents aged zero to 14 years plus those over the age of 65 years, compared with the total population aged 15 to 64 years.

This demographic indicator gives an insight into the number of people of non-working age, compared with the number of those of working age. This projection estimates a future fall

in the age-dependency ratio mainly as a result of fertility decline. The expansion of the elderly population has prevented a more rapid and substantial decline of this measure. Notice that this is not a measure of the economically active population, but of the working age population. Hence, it can be considered an indicator of the potential economically active population.

Figure 14 also raises an issue of an increasing number of school-going population – those in primary (6–11-year-olds) and junior secondary (12–14-year-olds). By the end of the projection period (2050), the proportion of the school-age population to the total Timor-Lest population will also increase in absolute terms, plans and programmes will thus be needed to increase physical infrastructure and related services to accommodate the increasing numbers.

Figure 14: Projected Total Age-Dependency Ratio, Timor-Leste, 2022 to 2050

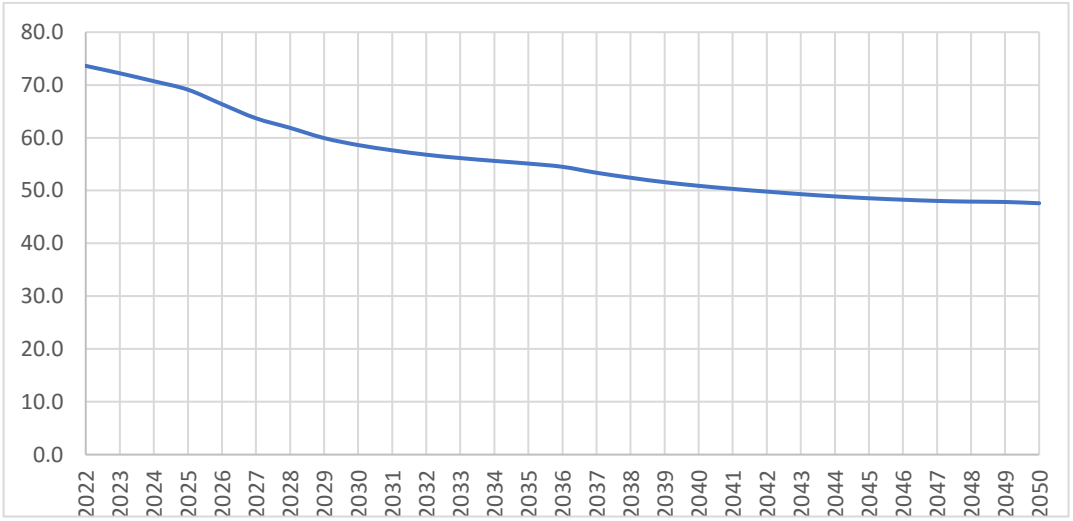
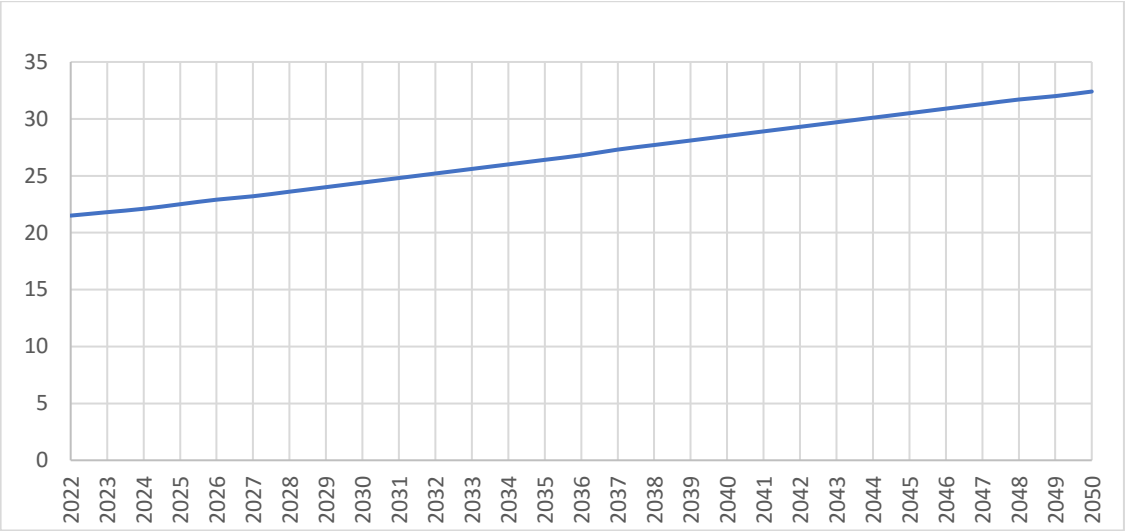


Figure 15 shows the projected median age. It is expected that it will increase from 21.5 to 32.4 years of age. The reason for this increase is that Timor-Leste population is expected to experience a moderate process of ageing, that is, and decline in the infant and child population and an increase of the aged.

Figure 15: Projected median Age, Timor-Leste, 2022 to 2050



To summarize, it is expected that the population in Timor-Leste will continue growing during the next three decades in spite of a declining fertility trend. In any population, during a process of fertility decline, such the one that Timor-Leste is likely to experience, the large cohorts born before the decline, start climbing in the population pyramid and enter into reproductive age. The number of children per woman decline, but the number of women having children increases. It is also important to mention that the population in Timor-Leste will experience a slow process of ageing as a result of a decline in the infant and child population and an increase of the aged population.

4. Results of Projections of Municipal Municipalities

This section provides the sub-antinational projection results, which were developed for the Municipalities to provide the necessary data to plan interventions at this level. The medium fertility scenario was produced for the period 2022 to 2035. The base population utilized for the Municipalities was adjusted by reconciling the combined Municipality populations measured in the 2022 Census to the national base population used in the national projections. Table 20 presents the projected populations and annual exponential growth rates for the Municipalities.

It can be seen that the most notable change by 2035, is that Dili's population is projected to increase by around 90 thousand people by 2035 – 13 years. Although initially the growth rate for Dili is high, it is expected to decline over time. Other municipalities with similar growth rates include Ermera, Liquica, and Baucau. Although the growth rates are projected to decline, there is a need to make investment socio-economic investments. These could include increase access to health services to allow men and women access sexual and reproductive health services to enhance family planning. Other strategies could include infrastructure such as school, road networks to spur development, education facilitates which can influence population growth indirectly.

Figures 16 to 30 present superimposed population pyramids for each Municipality corresponding to the beginning and end of the projection period. The pyramids facilitate understanding of the changing structure of each Municipality population over time and the differences between the structures in 2035. The changes in the age structure are because of an interplay of fertility and mortality, and to an extent, migration.

Working Age Population (15-64): The size of the population of working age (15-64) is projected to increase in all the municipalities. However, total dependency ratio is projected to decrease. Higher ratios indicate a greater level of dependency on the working-age population. For example, a dependency ratio of 63.6 indicates that there are roughly 64 people in dependent age groups for every 100 people of working age.

It is also encouraging to note that child dependency ratio is projected to decline. A high youth dependency ratio can mean that the country has a bright future with a lot of room to grow economically and a likely increase in living standards. A high dependency ratio means those of working age, and the overall economy, face a greater burden in supporting the aging population. However, in this case, the declining proportions may result in demographic dividend - the economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working-age population (15 to 64) is larger than the non-working-age share of the population (14 and younger, and 65 and older). Reproductive Age Population (15-49) - The size of the population of reproductive age (15-49) is projected to increase from about in all municipalities by 2035. Older Persons (65+): The proportion of the population of older persons (65+) is projected to increase in all the Municipalities with Ailieu (7 percent), Atauro (8.2 percent), Bobonaro (8.2 percent) and the highest will be observed in Baucau (9.2 percent). This calls for security pension for older persons.

Table 20: Population projection by Municipalities and selected demographic indicators, 2022-2035

Year	Timor-Leste		Aileu		Ainaro		Atauro		Baucau		Bobonaro		Covalima		Dili	
	Population	Rate of growth	Population	Rate of growth	Population	Rate of growth	Population	Rate of growth	Population	Rate of growth	Population	Rate of growth	Population	Rate of growth	Population	Rate of growth
2022	1,357,289		55,084		71,911		10,457		135,300		108,641		74,787		329,497	
2023	1,385,030	2.02	56,266	2.12	73,387	1.97	10,585	1.22	138,054	2.02	110,620	1.81	76,086	1.72	337,058	2.27
2024	1,412,603	1.97	57,404	2.00	74,637	1.52	10,714	1.21	140,902	2.04	112,542	1.72	77,335	1.63	344,720	2.25
2025	1,438,734	1.83	58,449	1.80	75,591	1.11	10,840	1.17	143,801	2.04	114,304	1.55	78,476	1.46	352,093	2.12
2026	1,463,989	1.74	59,415	1.64	76,417	1.13	10,964	1.14	146,763	2.04	115,961	1.44	79,531	1.34	359,265	2.02
2027	1,488,949	1.69	60,319	1.51	77,269	1.14	11,093	1.17	149,795	2.04	117,568	1.38	80,525	1.24	366,338	1.95
2028	1,513,553	1.64	61,182	1.42	78,139	1.14	11,222	1.16	152,871	2.03	119,124	1.31	81,472	1.17	373,262	1.87
2029	1,537,744	1.59	62,028	1.37	79,024	1.15	11,348	1.12	155,964	2.00	120,632	1.26	82,390	1.12	379,994	1.79
2030	1,561,458	1.53	62,852	1.32	79,924	1.16	11,473	1.10	159,064	1.97	122,088	1.20	83,280	1.07	386,502	1.70
2031	1,584,856	1.49	63,661	1.28	80,859	1.21	11,597	1.07	162,165	1.93	123,516	1.16	84,152	1.04	392,817	1.62
2032	1,608,097	1.46	64,460	1.25	81,850	1.26	11,719	1.05	165,265	1.89	124,937	1.14	85,021	1.03	398,967	1.55
2033	1,631,112	1.42	65,252	1.22	82,887	1.28	11,839	1.02	168,359	1.86	126,346	1.12	85,892	1.02	404,915	1.48
2034	1,653,835	1.38	66,043	1.20	83,960	1.29	11,958	1.00	171,445	1.82	127,736	1.09	86,770	1.02	410,626	1.40
2035	1,676,208	1.34	66,825	1.18	85,058	1.29	12,074	0.97	174,512	1.77	129,102	1.06	87,653	1.01	416,088	1.32

Continued ….

Table 21: Population projection by Municipalities and selected demographic indicators, 2022-2035

Year	Timor-Leste		Ermera		Lautem		Liquiçá		Manatuto		Manufahi		Oecussi		Viqueque	
	Population	Rate of growth	Population	Rate of growth	Population	Rate of growth	Population	Rate of growth	Population	Rate of growth	Population	Rate of growth	Population	Rate of growth	Population	Rate of growth
2022	1,357,289		140,226		70,954		85,088		51,522		61,280		81,570		80,974	
2023	1,385,030	2.02	143,343	2.20	72,297	1.88	86,912	2.12	52,439	1.76	62,501	1.97	83,132	1.90	82,350	1.69
2024	1,412,603	1.97	146,464	2.15	73,655	1.86	88,749	2.09	53,386	1.79	63,697	1.90	84,670	1.83	83,730	1.66
2025	1,438,734	1.83	149,383	1.97	74,942	1.73	90,511	1.97	54,312	1.72	64,833	1.77	86,137	1.72	85,061	1.58
2026	1,463,989	1.74	152,159	1.84	76,182	1.64	92,230	1.88	55,227	1.67	65,936	1.69	87,567	1.65	86,371	1.53
2027	1,488,949	1.69	154,846	1.75	77,398	1.58	93,940	1.84	56,154	1.66	67,028	1.64	88,984	1.61	87,692	1.52
2028	1,513,553	1.64	157,475	1.68	78,600	1.54	95,627	1.78	57,081	1.64	68,102	1.59	90,386	1.56	89,011	1.49
2029	1,537,744	1.59	160,079	1.64	79,794	1.51	97,273	1.71	57,999	1.60	69,149	1.53	91,759	1.51	90,312	1.45
2030	1,561,458	1.53	162,647	1.59	80,979	1.47	98,876	1.63	58,909	1.56	70,168	1.46	93,101	1.45	91,597	1.41
2031	1,584,856	1.49	165,196	1.56	82,160	1.45	100,450	1.58	59,817	1.53	71,168	1.42	94,418	1.40	92,880	1.39
2032	1,608,097	1.46	167,751	1.53	83,342	1.43	102,006	1.54	60,730	1.51	72,157	1.38	95,720	1.37	94,173	1.38
2033	1,631,112	1.42	170,299	1.51	84,528	1.41	103,539	1.49	61,643	1.49	73,136	1.35	97,006	1.33	95,470	1.37
2034	1,653,835	1.38	172,836	1.48	85,718	1.40	105,045	1.44	62,546	1.45	74,106	1.32	98,285	1.31	96,760	1.34
2035	1,676,208	1.34	175,356	1.45	86,906	1.38	106,528	1.40	63,443	1.42	75,068	1.29	99,557	1.29	98,037	1.31

Figure 16: Superimposed population pyramids Ailieu, 2022 and 2035

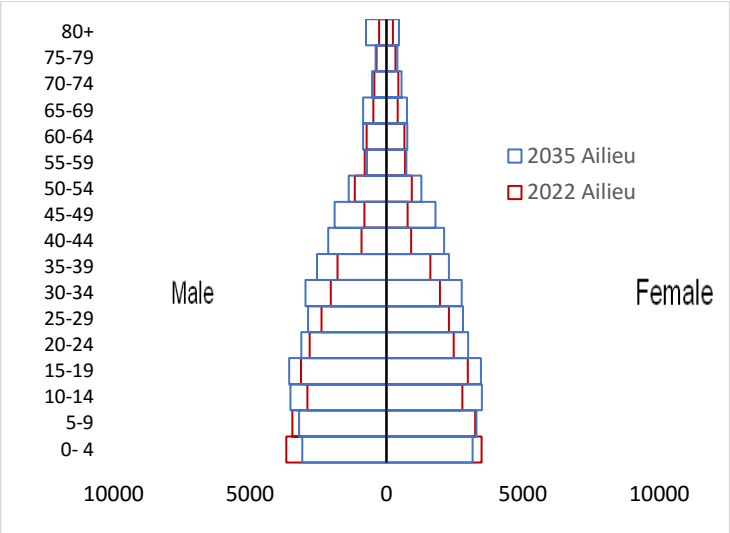


Figure 17: Superimposed population pyramids Ainaro, 2022 and 2035

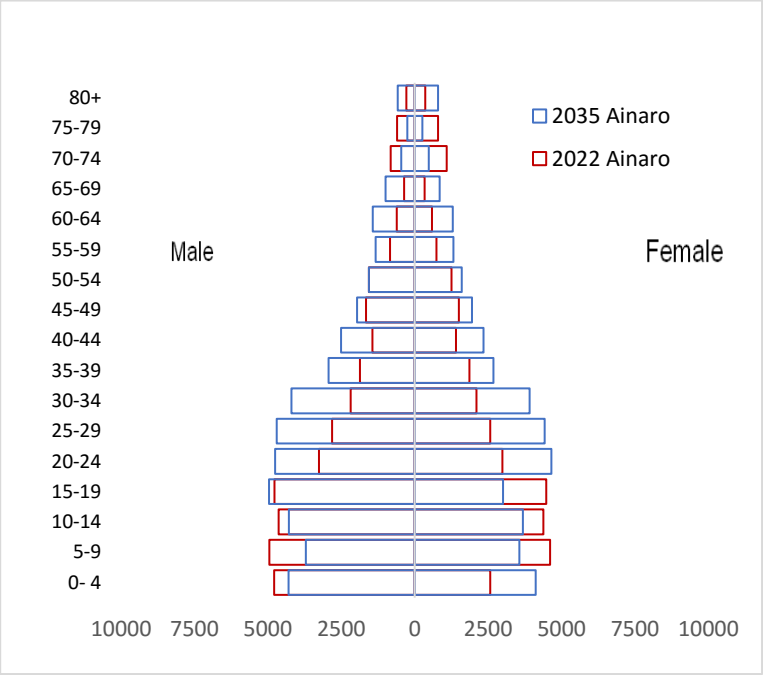


Figure 18: Superimposed population pyramids Atauro, 2022 and 2035

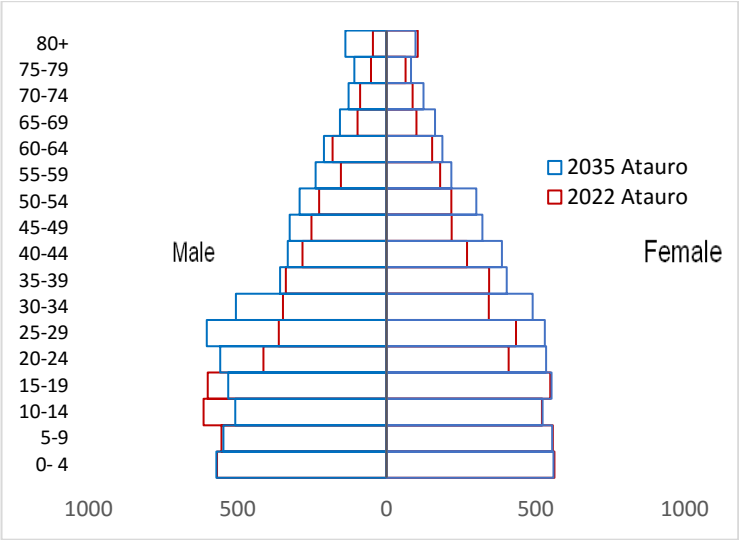


Figure 19: Superimposed population pyramids Baucau, 2022 and 2035

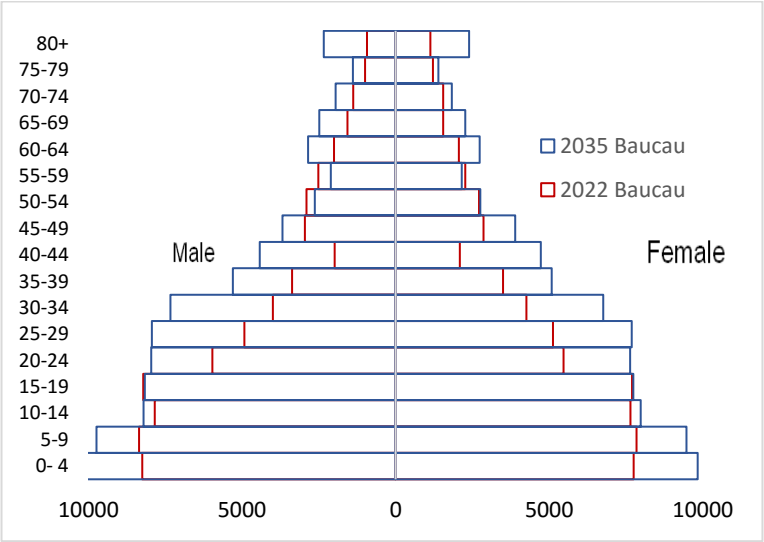


Figure 20: Superimposed population pyramids Bobonaro, 2022 and 2035

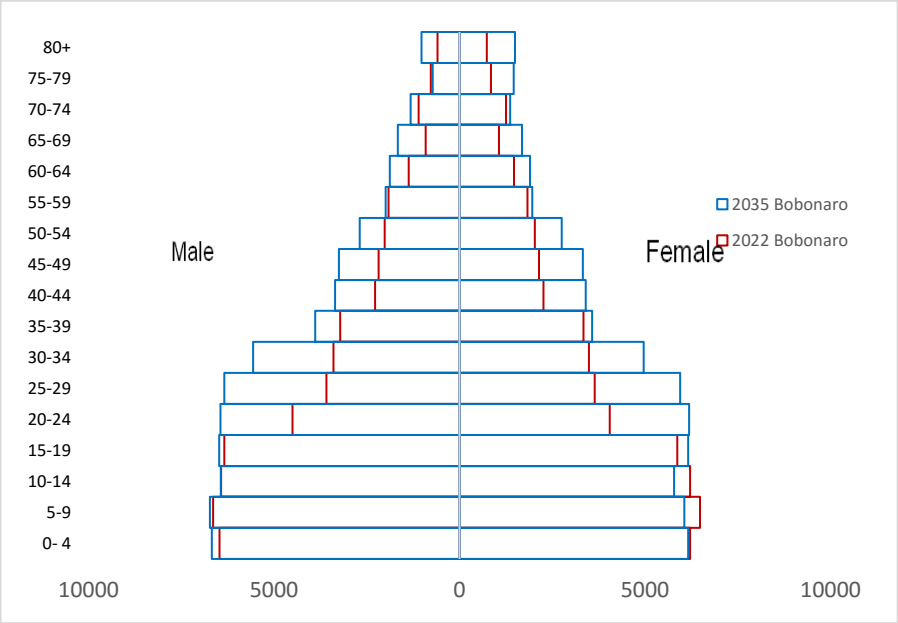


Figure 21:Superimposed population pyramids, Covalima, 2022 and 2035

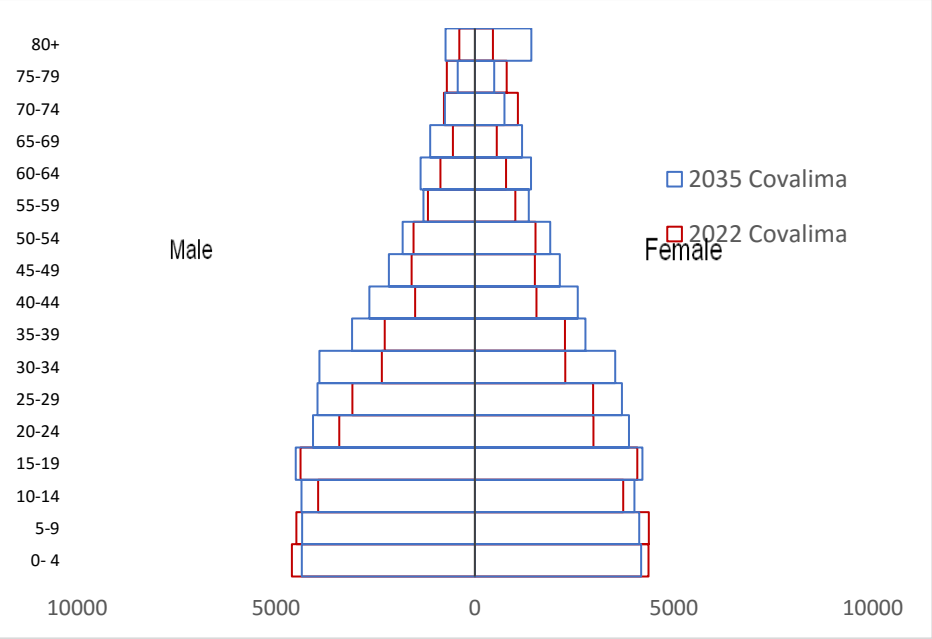


Figure 22: Superimposed population pyramids, Dili, 2022 and 2035

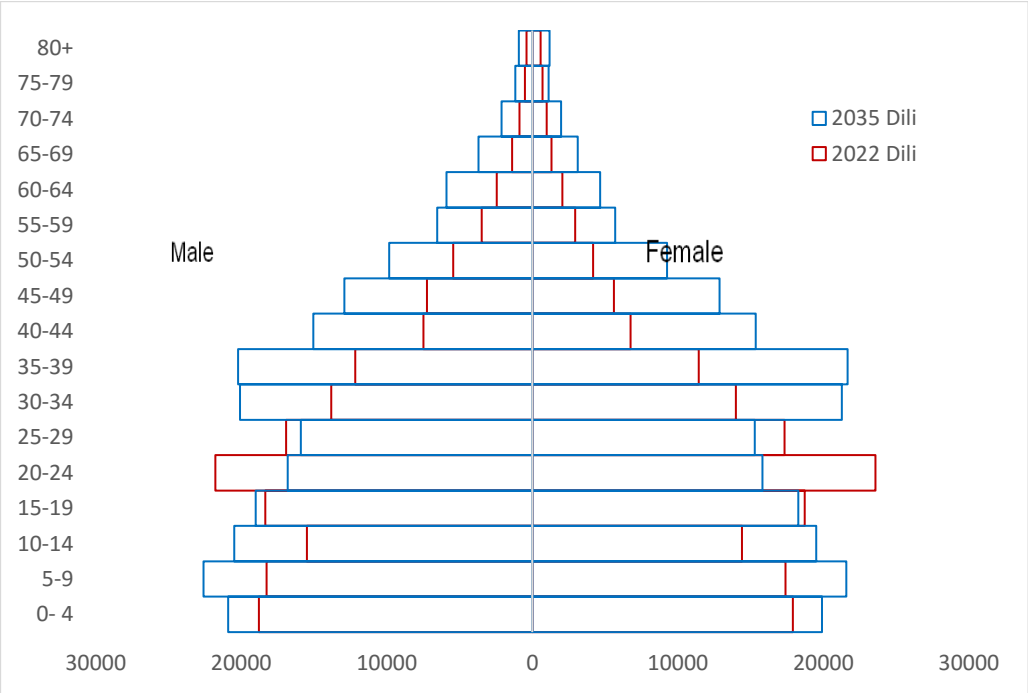


Figure 23: Superimposed population pyramids, Ermera, 2022 and 2035

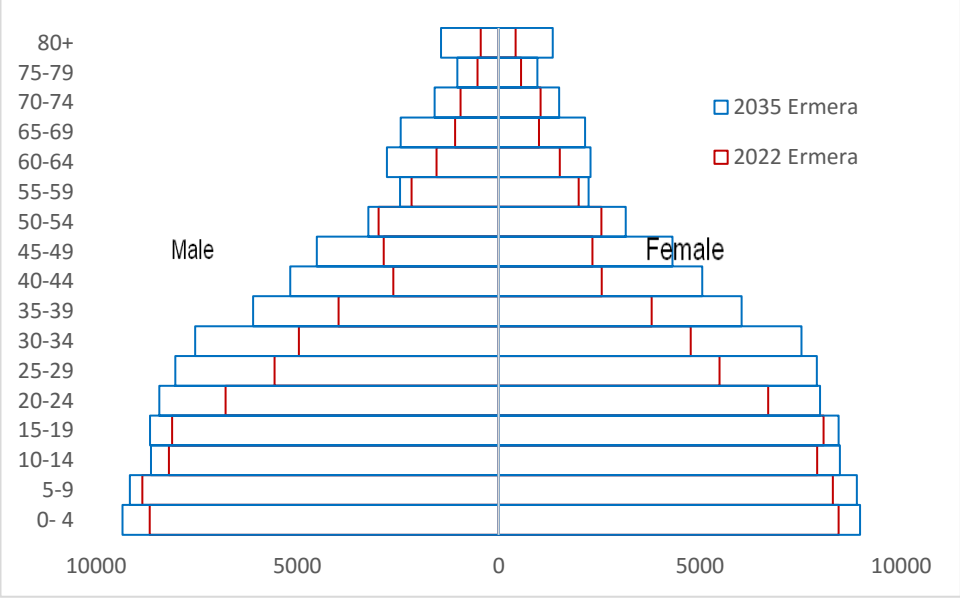


Figure 24: Superimposed population pyramids, Lautem, 2022 and 2035

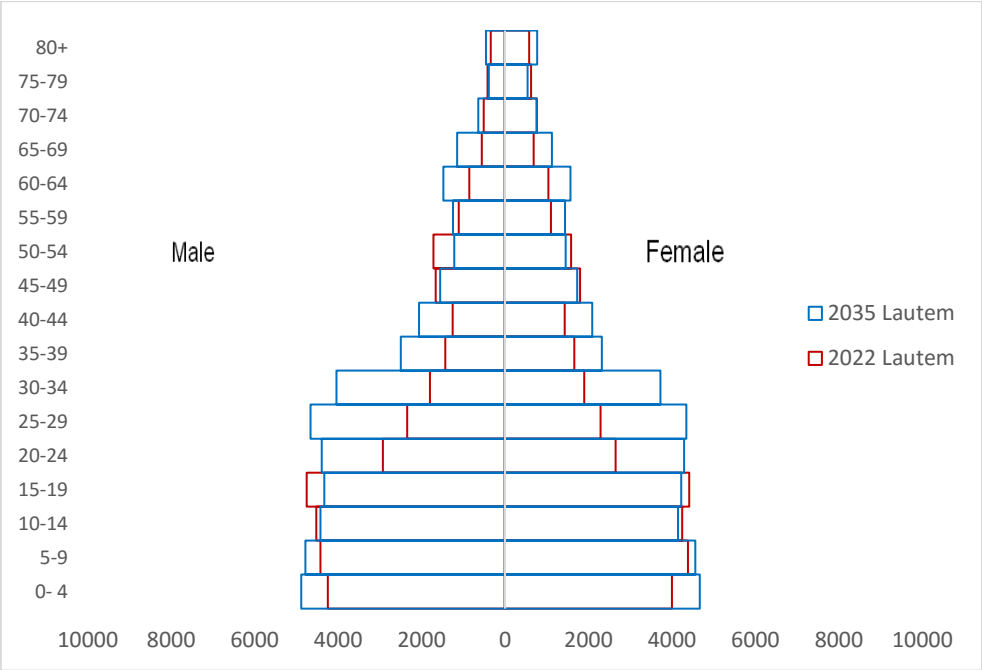


Figure 25: Superimposed population pyramids, Liquiça, 2022 and 2035

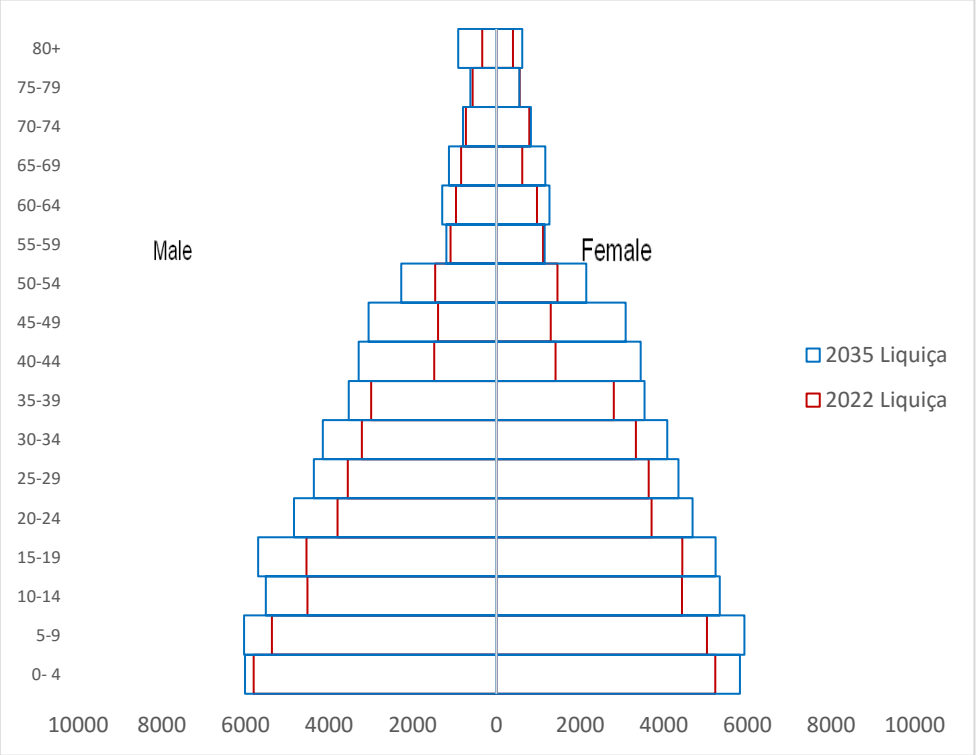


Figure 26: Superimposed population pyramids, Manatuto, 2022 and 2035

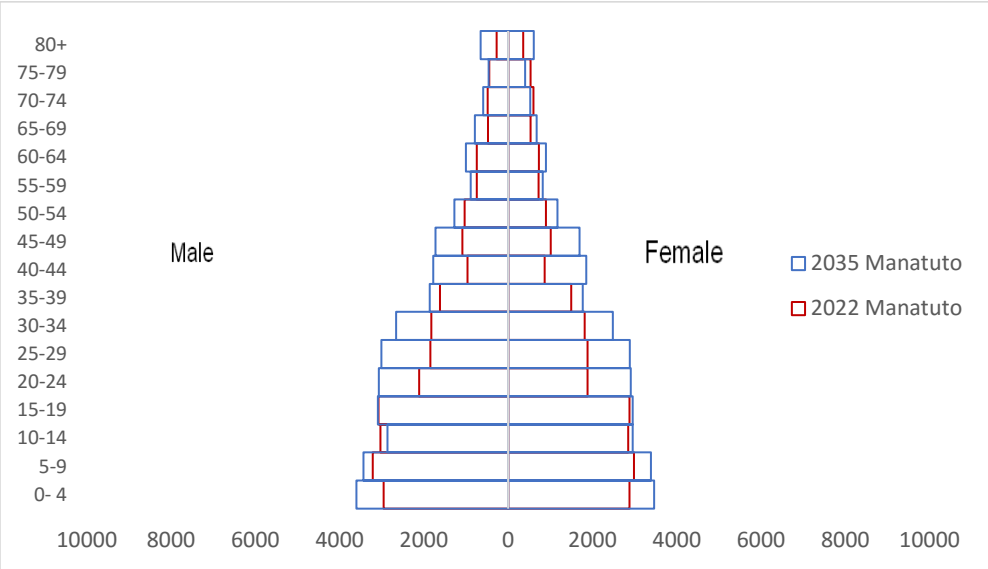


Figure 27: Superimposed population pyramids, Manufahi, 2022 and 2035

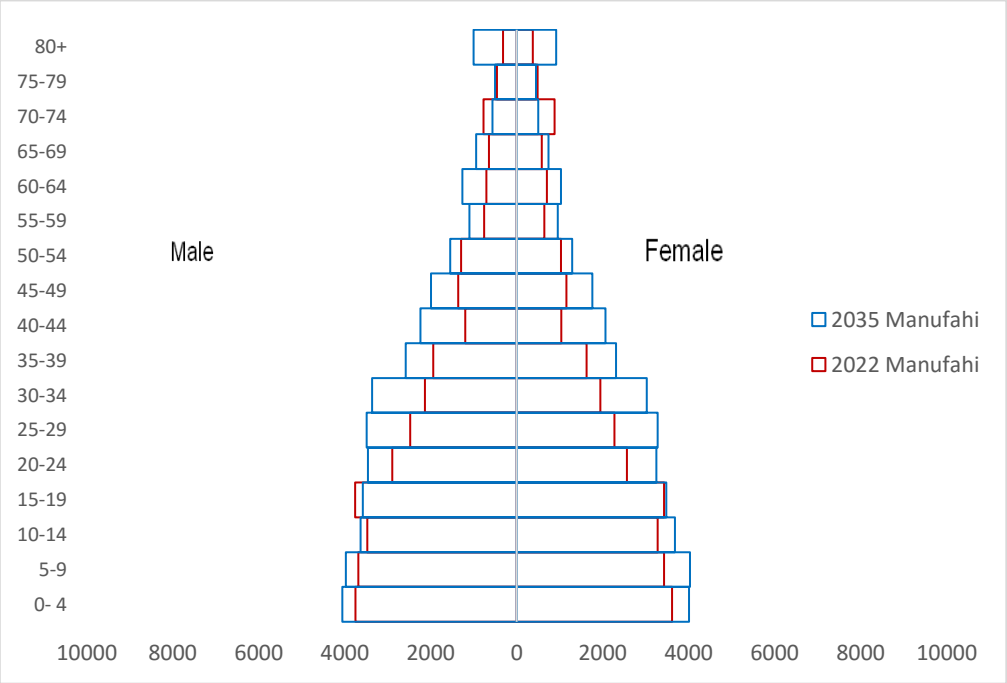


Figure 28: Superimposed population pyramids, Oecusse, 2022 and 2035

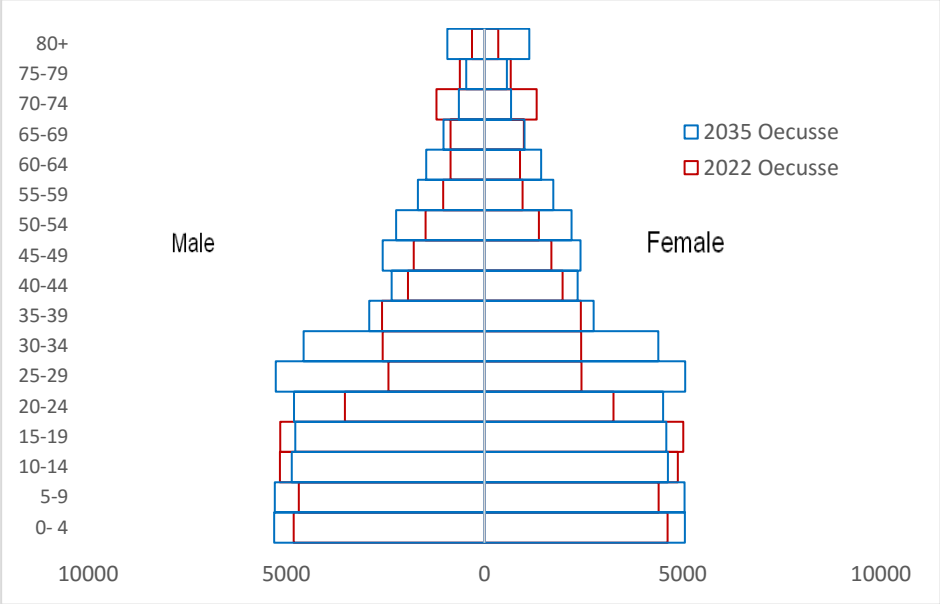


Figure 29: Superimposed population pyramids, Viqueque, 2022 and 2035

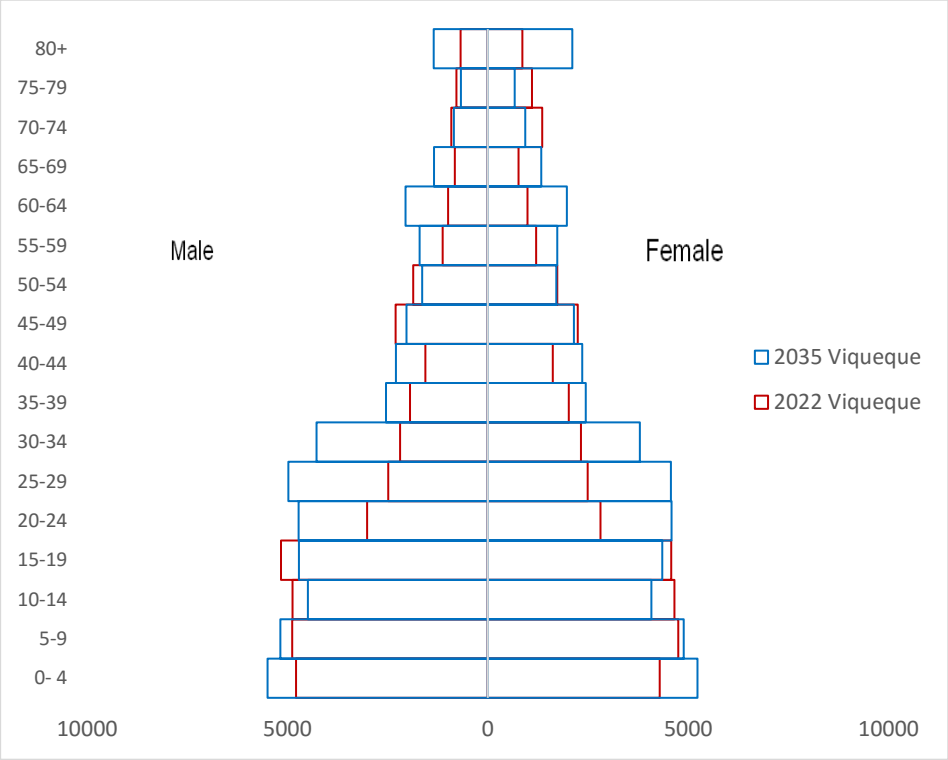


Table 22: Selected demographic indicators, Municipality projections, 2022 to 2035.

Alieu												
Year	Sex Ratio	Median age	% <15	%15-64	%>65	%Women 15-49	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Ageing Ratio	Elderly Support Ratio	TFR
2022	107.1	20.2	36.0	58.6	5.5	49.5	70.8	61.4	9.3	15.3	63.1	4.2
2025	106.1	22.4	35.5	58.9	5.7	50.6	69.8	60.2	9.6	16.1	68.9	3.3
2030	105.0	23.9	33.2	60.8	6.0	52.8	64.4	54.6	9.8	18.1	62.9	2.8
2035	103.7	25.8	29.2	63.8	7.0	55.0	56.8	45.9	10.9	24.0	62.9	2.5
Ainaro												
Year	Sex Ratio	Median age	% <15	%15-64	%>65	%Women 15-49	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Ageing Ratio	Elderly Support Ratio	TFR
2022	111.1	20.2	36.5	57.0	6.5	50.3	75.5	64.0	11.5	17.8	75.8	4.8
2025	110.6	21.4	34.3	59.9	5.9	52.2	67.0	57.2	9.8	17.2	69.6	2.8
2030	110.1	23.9	29.3	65.6	5.1	57.2	52.6	44.7	7.8	17.4	56.8	2.6
2035	109.5	26.1	27.6	67.0	5.4	56.1	49.2	41.1	8.1	19.6	49.7	2.5
Atauro												
Year	Sex Ratio	Median age	% <15	%15-64	%>65	%Women 15-49	Total Dependency Ratio	Child [10]Dependency Ratio	Old Age Dependency Ratio	Ageing Ratio	Elderly Support Ratio	TFR
2022	101.0	23.7	32.8	60.9	6.2	50.2	64.1	53.9	10.2	18.9	55.2	2.9
2025	101.3	24.3	30.8	62.4	6.8	51.5	60.2	49.3	10.9	22.1	57.7	3.0
2030	101.3	25.8	28.6	63.9	7.5	53.0	56.5	44.8	11.7	26.2	63.9	2.8
2035	101.1	27.8	26.9	64.9	8.2	53.4	54.1	41.4	12.6	30.5	41.3	2.6

[10] The youth dependency ratio includes those only under 15, and the elderly dependency ratio focuses on those over 64. The youth dependency ratio is the population ages 0-14 divided by the population ages 15-64. The old-age dependency ratio is the population ages 65-plus divided by the population ages 16-64. The total age dependency ratio is the sum of the youth and old-age ratios.

Baucau												
Year	**Sex Ratio**	**Median age**	**% <15**	**%15-64**	**%> 65**	**%Women 15-49**	**Total Dependency Ratio**	**Child Dependency Ratio**	**Old Age Dependency Ratio**	**Ageing Ratio**	**Elderly Support Ratio**	**TFR**
2022	102.1	21.5	35.4	57.0	7.6	46.5	75.4	62.0	13.4	21.5	84.7	4.1
2025	102.3	22.3	33.9	58.0	8.1	47.4	72.5	58.5	14.0	23.9	98.1	4.0
2030	102.6	23.9	32.6	58.8	8.7	49.4	70.2	55.4	14.7	26.7	106.6	3.5
2035	102.8	25.2	31.7	59.2	9.2	50.4	69.0	53.5	15.5	29.0	104.8	3.1

Bobonaro												
Year	Sex Ratio	Median age	% <15	%15-64	%>65	%Women 15-49	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Ageing Ratio	Elderly Support Ratio	TFR
2022	101.5	21.4	36.1	57.1	6.8	46.8	75.1	63.1	11.9	18.8	72.6	4.0
2025	101.9	22.1	34.3	58.7	7.0	48.3	70.3	58.4	11.9	20.4	75.2	3.6
2030	102.7	24.0	31.4	61.0	7.6	51.0	64.0	51.5	12.5	24.2	74.0	3.0
2035	103.4	25.9	29.0	62.8	8.2	52.3	59.2	46.1	13.1	28.3	73.8	2.7
Covalima												
Year	**Sex Ratio**	**Median age**	**% <15**	**%15-64**	**%> 65**	**%Women 15-49**	**Total Dependency Ratio**	**Child Dependency Ratio**	**Old Age Dependency Ratio**	**Ageing Ratio**	**Elderly Support Ratio**	**TFR**
2022	103.5	22.2	34.5	58.3	7.2	48.6	71.5	59.1	12.4	20.9	82.4	3.9
2025	103.2	22.9	33.7	59.2	7.1	49.9	68.9	56.9	11.9	21.1	80.3	3.4
2030	103.0	24.8	31.5	61.4	7.1	50.8	62.8	51.2	11.6	22.5	74.1	2.9
2035	102.9	26.6	28.7	63.6	7.8	52.3	57.3	45.1	12.2	27.2	72.6	2.6

Ermera

Year	Sex Ratio	Median age	% <15	%15-64	%> 65	%Women 15-49	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Ageing Ratio	Elderly Support Ratio	TFR
2022	104.1	20.8	36.6	59.1	4.4	50.0	69.3	61.9	7.4	12.0	45.7	4.0
2025	104.0	21.8	35.1	60.1	4.9	60.0	66.5	58.4	8.1	14.0	55.2	3.2
2030	103.8	23.8	32.4	61.7	5.8	52.9	62.0	52.6	8.4	17.9	60.8	2.6
2035	103.7	25.6	30.1	62.9	7.0	54.2	59.0	47.8	11.1	23.3	66.9	2.4

Dilli

Year	Sex Ratio	Median age	% <15	%15-64	%> 65	%Women 15-49	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Ageing Ratio	Elderly Support Ratio	TFR
2022	103.0	22.5	31.5	66.4	2.1	60.9	50.5	47.4	3.1	6.7	24.5	3.0
2025	102.9	24.0	31.8	65.9	2.3	57.8	51.7	48.2	3.5	7.2	22.5	2.8
2030	102.8	26.1	31.5	65.7	2.8	58.6	52.1	47.8	4.3	8.9	21.8	2.5
2035	102.6	27.8	29.6	66.8	3.6	57.8	49.7	44.3	5.4	12.2	22.7	2.2

Lautem

Year	Sex Ratio	Median age	% <15	%15-64	%>65	%Women 15-49	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Ageing Ratio	Elderly Support Ratio	TFR
2022	99.1	20.0	36.9	56.7	7.8	76.3	76.3	65.0	11.3	21.1	61.0	3.0
2025	99.7	21.0	35.1	58.6	7.4	70.7	70.7	60.0	10.7	21.1	63.3	2.8
2030	100.5	23.0	32.8	61.0	6.6	63.9	63.9	53.8	10.1	20.1	68.1	2.5
2035	101.0	24.6	31.2	62.1	6.4	51.9	60.9	50.3	10.7	20.5	72.4	2.2

Liquica												
Year	Sex Ratio	Median age	% <15	%15-64	%>65	%Women 15-49	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Ageing Ratio	Elderly Support Ratio	TFR
2022	103.9	21.6	36.2	49.6	5.8	50	72.3	62.4	9.9	16.0	71.9	3.8
2025	104.2	22.1	35.8	58.4	5.8	50.6	71.3	61.4	9.9	16.2	70.2	3.3
2030	104.3	23.3	34.6	59.6	5.8	52.5	67.7	57.9	9.7	16.8	59.5	2.9
2035	104.1	24.4	32.1	61.8	6.1	53.4	61.9	51.9	9.9	19.0	52.9	2.6
Manatuto												
Year	Sex Ratio	Median age	% <15	%15-64	%>65	%Women 15-49	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Ageing Ratio	Elderly Support Ratio	TFR
2022	103.9	21.7	35.2	57.5	7.3	47.5	73.9	61.3	12.7	20.7	88.6	3.9
2025	104.2	22.3	33.8	58.8	7.4	48.9	70.1	57.6	12.5	21.9	85.7	3.7
2030	104.3	23.9	32.1	60.7	7.2	51.5	64.8	52.9	11.9	22.4	78.6	3.3
2035	104.1	25.3	30.7	62.0	7.3	52.6	61.4	49.5	11.8	23.8	72.7	3.0
Manufahi												
Year	Sex Ratio	Median age	% <15	%15-64	%>65	%Women 15-49	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Ageing Ratio	Elderly Support Ratio	TFR
2022	108.7	21.6	35.0	57.5	7.5	48.3	73.8	60.9	13.0	21.4	88.7	4.0
2025	108.2	22.4	33.9	58.6	7.5	50.4	70.7	57.9	12.8	22.1	96.0	3.7
2030	107.5	24.1	32.4	60.4	7.2	46.9	65.6	53.7	11.9	22.2	92.0	3.2
2035	106.8	25.7	30.7	61.9	7.4	52.1	61.6	49.7	11.9	24.1	79.9	2.8

Oecuse												
Year	Sex Ratio	Median age	% <15	%15-64	%>65	%Women 15-49	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Ageing Ratio	Elderly Support Ratio	TFR
2022	103.3	21.0	35.4	56.8	7.8	48.5	76.1	62.3	13.8	22.0	75.3	4.0
2025	103.2	21.9	33.3	59.3	7.4	50.5	68.7	56.2	12.5	22.2	77.8	3.6
2030	103.2	23.8	31.5	61.9	6.6	52.0	61.7	51.0	10.7	21.0	73.0	3.0
2035	103.2	25.7	30.0	63.6	6.4	52.6	57.2	47.1	10.1	21.3	66.2	2.7
Viqueque												
Year	Sex Ratio	Median age	% <15	%15-64	%>65	%Women 15-49	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio	Ageing Ratio	Elderly Support Ratio	TFR
2022	101.4	21.5	35.2	55.7	9.1	45.4	79.6	63.2	16.3	25.9	92.2	4.1
2025	101.7	22.3	33.2	57.7	9.1	46.2	73.2	57.5	15.7	27.4	99.4	3.9
2030	102.3	24.2	30.9	60.2	8.9	48.2	66.2	51.4	14.8	28.8	105.2	3.4
2035	102.8	26.0	29.6	61.1	9.3	49.6	63.7	48.5	15.3	31.4	109.8	3.0

4. Conclusion

Population data are important sources of information for planning and policy formulation. Without accurate and timely demographic and socio-economic data, planning will be in a vacuum. For this reason, the 1994 World Population Programme of Action recommended the integration of population variables into development planning. Population data collected from censuses and surveys represent data for specific periods of time and need to be updated to make it relevant for planning. The projected population by age, size and distribution of Timor-Leste for the period 2022 to 2050 will, therefore, serve as a major source of data that is expected to serve the needs of Government, planners and other users.

4.1 Policy Implication

A growing population will result in increased demand on land, housing, jobs, schooling and health services, food security, greenhouse emissions and energy needs. Policy makers will need to address such issues.

- The changing age structure towards the working age population requires policy makers to invest in skills development to increase the country's prospect of realizing the benefits of demographic dividend that can be harnessed in the coming 20 years.
- Investment in skills development should be complemented with sound economic policy to spur job creation.
- More educational and housing infrastructure are needed to meet the needs of the growing population.
- The growth rate and size of future youth and working-age population would pose additional challenges in terms of generating sustainable employment and livelihood opportunities.

- The decline in fertility and improvements in adult and old age survivorship would imply that the future dependency ratio will be sensitive to the decreasing number of children and increasing number of elderly people in the population. This would have implications on providing social support and healthcare and living arrangements of the elderly population.
- It is recommended that, when formulating and revising the development policies and programmes for the country, the Government and its development partners should

consider the increasing population size, the proportion of youth in the population, working-age groups and the aged.

- Priority should be given to satisfying the basic needs of the population through the provision of safe drinking water and adequate shelter. More educational and primary health care infrastructure and services are needed.
- There should be training and job assistance for persons in the working-age group entering the labour force, and full employment, giving them the opportunity to actively participate in the political, cultural, social and economic life in Timor-Leste.

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